



REMOVAL ACTION WORK PLAN

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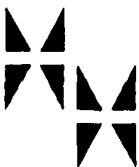
CHICAGO HEIGHTS IRON & SUPPLY CO.

1715 Wentworth Ave.  
Chicago Heights, Illinois

September 11, 2000

Prepared for  
NICOR GAS

Prepared by  
James E. Huff, P.E.  
Lisa Paulson



***HUFF & HUFF, INC.***  
ENVIRONMENTAL CONSULTANTS  
LaGRANGE, ILLINOIS

## TABLE OF CONTENTS

1.	INTRODUCTION .....	1
2.	SCRAP IRON REMOVAL .....	3
3.	SOIL SAMPLING .....	6
3.1	Soil Screening and Soil Removal Procedures.....	6
3.2	Soil Confirmation Sampling Protocol.....	6
4.	DECONTAMINATION PROCEDURES .....	9
5.	CONTRACTOR AND SCHEDULE .....	10

## LIST OF FIGURES

Figure 1-1	Site Location Map.....	2
Figure 2-1	Site Layout Map.....	4
Figure 3-1	Sample Location Map .....	7

## APPENDICES

Appendix A	Mercury Waste Solutions Information
Appendix B	EQ - Information
Appendix C	Information on Mercury Cleaning Solution-102

## **1. INTRODUCTION**

This Removal Action Work Plan sets forth the actions Nicor Gas ("Nicor") will undertake to satisfy its obligations under Paragraph 3 of the Unilateral Administrative Order issued by the United States Environmental Protection Agency (U.S. EPA) to Nicor and Chicago Heights Iron & Supply Co., ("Chicago Heights Iron & Supply") on September 6, 2000 pursuant to the Agency's authority under Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"). Specifically, this Work Plan provides for the implementation of certain response activities to address potential impacts associated with the handling of mercury type gas regulators at the Chicago Heights Iron and Supply scrap yard located at 1715 Wentworth Avenue in Chicago Heights, Illinois.

The Chicago Heights Iron & Supply Company is located at 1715 Wentworth Avenue in Chicago Heights, Illinois. Figure 1-1 depicts the site location. The site is located in an industrial area. South of the facility is a vacant lot and farther to the south is a railroad track. A residential area is located along 20<sup>th</sup> Street, on the other side of the railroad tracks. West of the facility, across Wentworth Avenue is a vacant lot. The facility is bordered to the north by additional railroad tracks, and north of these tracks, along the east and west side of Wentworth Avenue are commercial/industrial buildings. Adjacent to the east of the facility is the Ozinga Concrete plant.

As appropriate, Nicor may utilize the procedures set forth in this Work Plan to the extent that removal activities are performed at additional scrap yards. Upon completion of the work set forth in this work plan, Nicor and U.S. EPA will discuss whether modifications are necessary prior to the commencement of work at other sites. A decision for each scrap yard will depend on the amount of Nicor scrap metal to be sorted, the anticipated number of mercury type regulators present, access, and how efficiently Mercury Waste Solutions can sort the scrap metal.



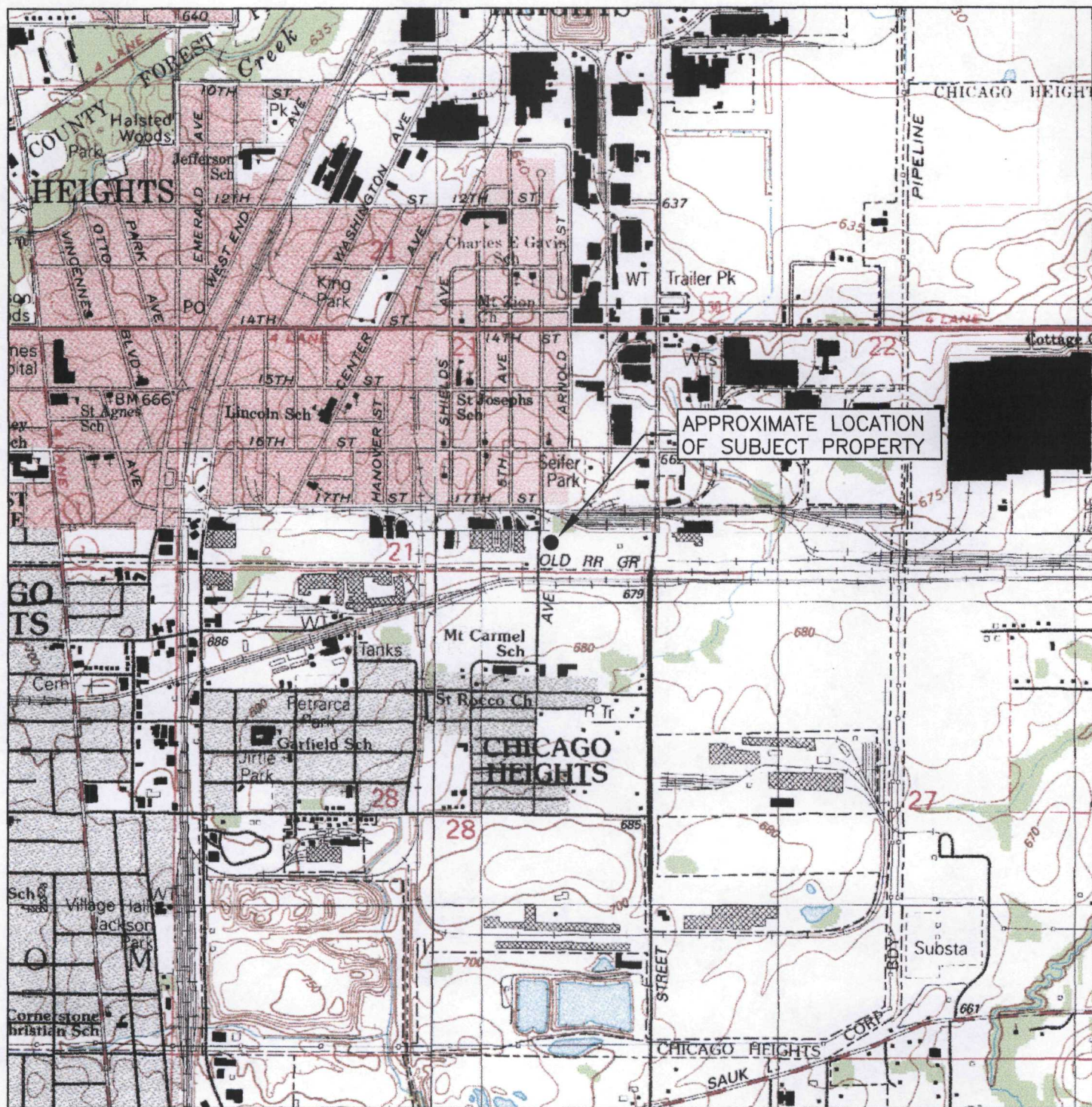


FIGURE 1-1  
 SITE LOCATION MAP  
 CHICAGO HEIGHTS IRON & SUPPLY CO.  
 CHICAGO HEIGHTS, ILLINOIS



2000' 0 2000'

SOURCE: UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY  
 DYER, STEGER, CALUMET CITY, & HARVEY, ILLINOIS QUADRANGLES



## 2. SCRAP METAL REMOVAL

IEPA representatives recently conducted an inspection at the Chicago Heights Iron & Supply facility. During that inspection, IEPA representatives identified certain discrete scrap metal storage areas where mercury-type regulators from Nicor facilities may have been stored and processed and where IEPA screening with a Jerome Meter indicated the presence of mercury. With respect to these discrete storage areas, rather than sort through all existing materials, Nicor shall remove all of the scrap metal stored in these areas as hazardous waste (D009) and transport it to Mercury Waste Solutions, a RCRA licensed treatment and storage facility in Union Grove, Wisconsin. Specifically the following removal action protocol will be followed:

### Removal Action

- Establish an exclusion zone, as depicted in Figure 2-1.
- Establish a decontamination area for personnel and one for vehicles entering and exiting the exclusion zone, as depicted in Figure 2-1.
- Position a truck with a rolloff box on the vehicle, lined with 6-mil plastic, immediately adjacent to the scrap pile.
- Using a crane or hydraulic excavator equipped with a hydraulic grapppler, transfer all scrap metal into the rolloff box.
- Cover the rolloff box and apply DOT (Hazardous Class 9) and RCRA (D009) labels.
- Relocate the truck to the truck decontamination area, as depicted on Figure 2-1.
- Screen the tires on the truck with a Jerome Meter. If any readings are above 0.010 mg/cu m, decontaminate the tire(s) with a mercury decontamination solution, in the truck decontamination area. Once the mercury levels are below 0.010 mg/cu m, the driver will be provided with a signed manifest, <sup>1/</sup> and the back two copies will be retained. The truck will proceed to Mercury Waste Solutions <sup>2/</sup> or Heritage Industrial Services in Lemont.
- Once the grapppler is no longer effective, the remainder of the scrap metal and any debris will be placed in the rolloff boxes by personnel in Level C PPE.
- Upon completion of the scrap metal removal, the grapppler and tires/tracks will be decontaminated using the same protocol as with the truck tires.

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<sup>1/</sup> The generator and associated identification number will be the Nicor Gas Glenwood facility at 19199 Glenwood Road, Glenwood, Illinois 60425, ID# ILDO45200367.

<sup>2/</sup> Mercury Waste Solutions, Inc., 21211 Durand Avenue, Union Grove, WI 53182-9711, US EPA ID# WIR000000356. Additional information on Mercury Waste Solutions is included in Appendix A.

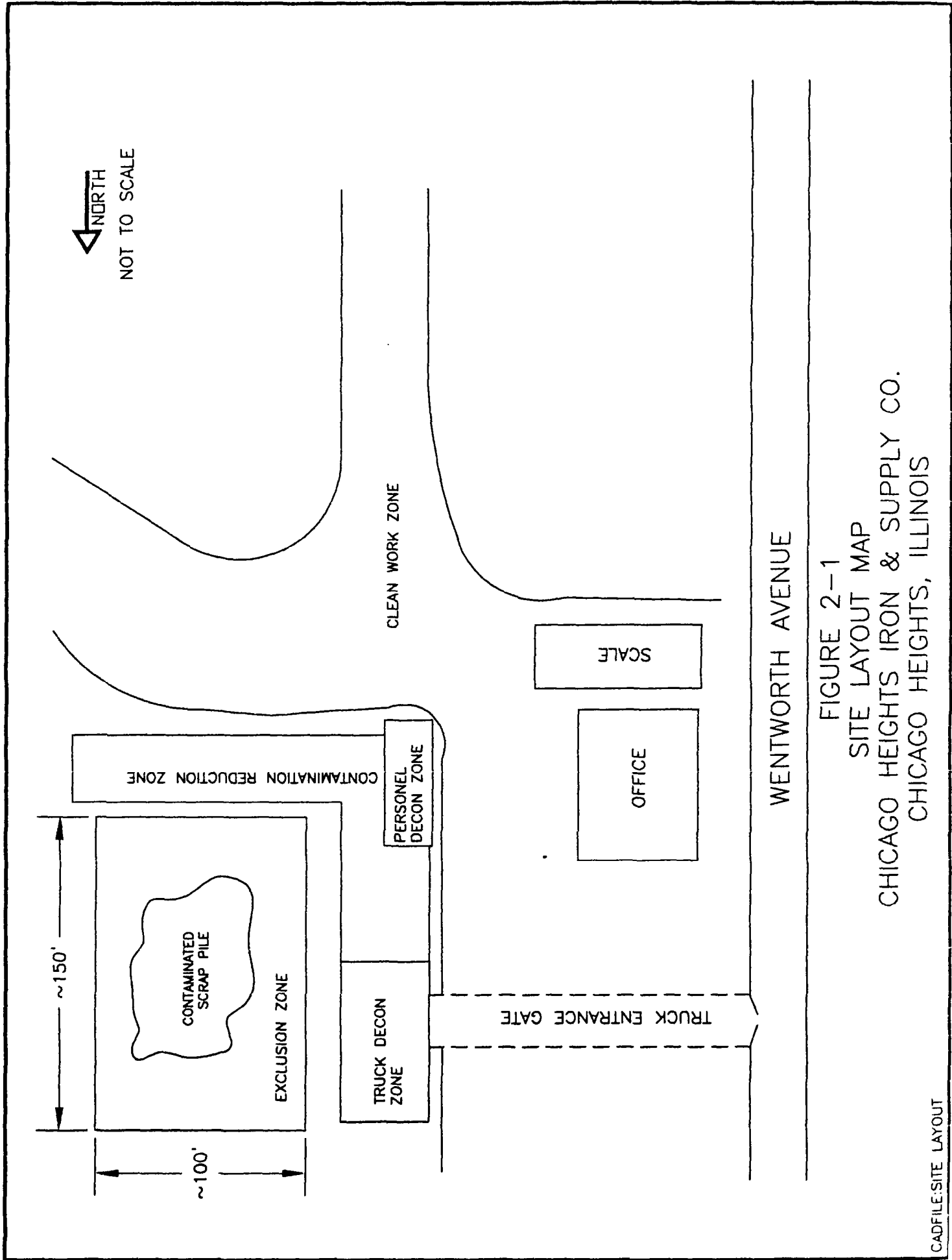


FIGURE 2-1  
SITE LAYOUT MAP  
CHICAGO HEIGHTS IRON & SUPPLY CO.  
CHICAGO HEIGHTS, ILLINOIS

- All decontamination water will be collected in a 55 gallon drum, tested and disposed of as hazardous or special waste based on the TCLP mercury results, at Heritage's Indianapolis aqueous facility.
- All visible mercury will be vacuumed from the ground utilizing a mercury vacuum equipped with a mercury trap, a post carbon filter, and a HEPA filter to trap any mercury vapor and dust. The vacuum filters and any mercury in the trap will be sent to Mercury Waste Solutions for retorting.
- The visqueen used during material transfer and any used during decontamination will be placed in the rolloff boxes for disposal as hazardous waste (D009).

At Mercury Waste Solutions, each rolloff box will be brought into a sorting room which has a carbon filtration system on the air supply. The following protocol will be followed:

- The scrap metal will be placed on sorting trays.
- All scrap metal will be inspected for visible mercury and for any mercury-type regulators. All scrap metal with visible mercury and mercury-type regulators will be retorted.
- The remaining scrap metal will be screened with a Jerome Meter. Any metal exhibiting a reading greater than 0.025 mg/cu m will be placed in 1 cu yd boxes for microencapsulation and landfilling at EQ<sup>3</sup>, as a mercury contaminated hazardous waste (D009).
- The remaining scrap metal (exhibiting less than 0.025 mg/cu m mercury vapor) will be shipped to a scrap metal reprocessing facility.<sup>4</sup>
- Once the rolloff box is emptied, the plastic liner will be removed and processed through the mercury retort.

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<sup>3</sup> EQ is Wayne Disposal Inc. 49350 North I-94 Service Drive, Belleville, MI 48111. USEPA ID# MID048090633. See Appendix B.

<sup>4</sup> / The 0.025 mg/cu m is the ACGIH TLV Time Weighted Average recommended for elemental mercury, for 8 hour exposure. The OSHA PEL ceiling concentration for mercury is 0.100 mg/cu m. By assuring no scrap exceeds 0.025 mg/cu m mercury vapors, the workers at the scrap metal facility cannot be over exposed to mercury.

### **3. SOIL SAMPLING**

#### **3.1 Soil Screening and Soil Removal Procedures**

After all of the scrap metal and miscellaneous debris from the designated area has been removed, and any visible mercury vacuumed up, a 10-ft by 10-ft sampling grid will be set up, as depicted in Figure 3-1. Although not depicted in Figure 3-1, there is a metal shear located in the northwest corner of the exclusion zone. The shear side and drop off side of the shear will be included in the sampling grid. The following procedure will be utilized:

1. Set out a 10-ft by 10-ft grid with flagging, over the entire area, labeling the flags from 1 to 10 and A to O, as depicted in Figure 3-1.
2. Using the Jerome 431-X or 411 meter, with particulate filter, readings will be taken at each flagged area, at a height of 1-inch +/- 0.5 inch above the ground level. The results will be recorded. At any location where a positive reading is obtained, a second reading will be taken. The average result will be utilized.
3. At any location where a reading above 0.01 mg/cu m is obtained, a backhoe will remove 6 inches of soil from the 10-ft by 10-ft area, and the area will be re-tested with the Jerome Meter. This procedure will continue until the entire area achieves 0.01 mg/cu m mercury vapor.
4. The excavated soil will be loaded into a lined rolloff box located on the back of the truck.
5. The flags will remain in place at the completion of the Jerome meter screening.
6. At the completion of this phase, the rolloff box will be removed from the truck, placed on the site, sampled, and covered.
7. The soil will be analyzed for TCLP RCRA metals. The soil will be disposed of as a RCRA hazardous waste or as a special waste based on the sampling results.

#### **3.2 Soil Confirmation Sampling Protocol**

The following protocol will be used for confirming that the mercury has been successfully removed from the site.

1. From each row (in the east to west direction, or 1 to 10 on Figure 3-1), a soil sample from the location having the highest final Jerome Meter reading will be sampled from 0 to 6 inches using a hand auger, if possible, or a shovel and pick ax if the ground is too firm for the hand auger. The soil will be placed into a stainless steel mixing bowl, mixed thoroughly, and placed in two 4-ounce virgin laboratory jars for analysis.



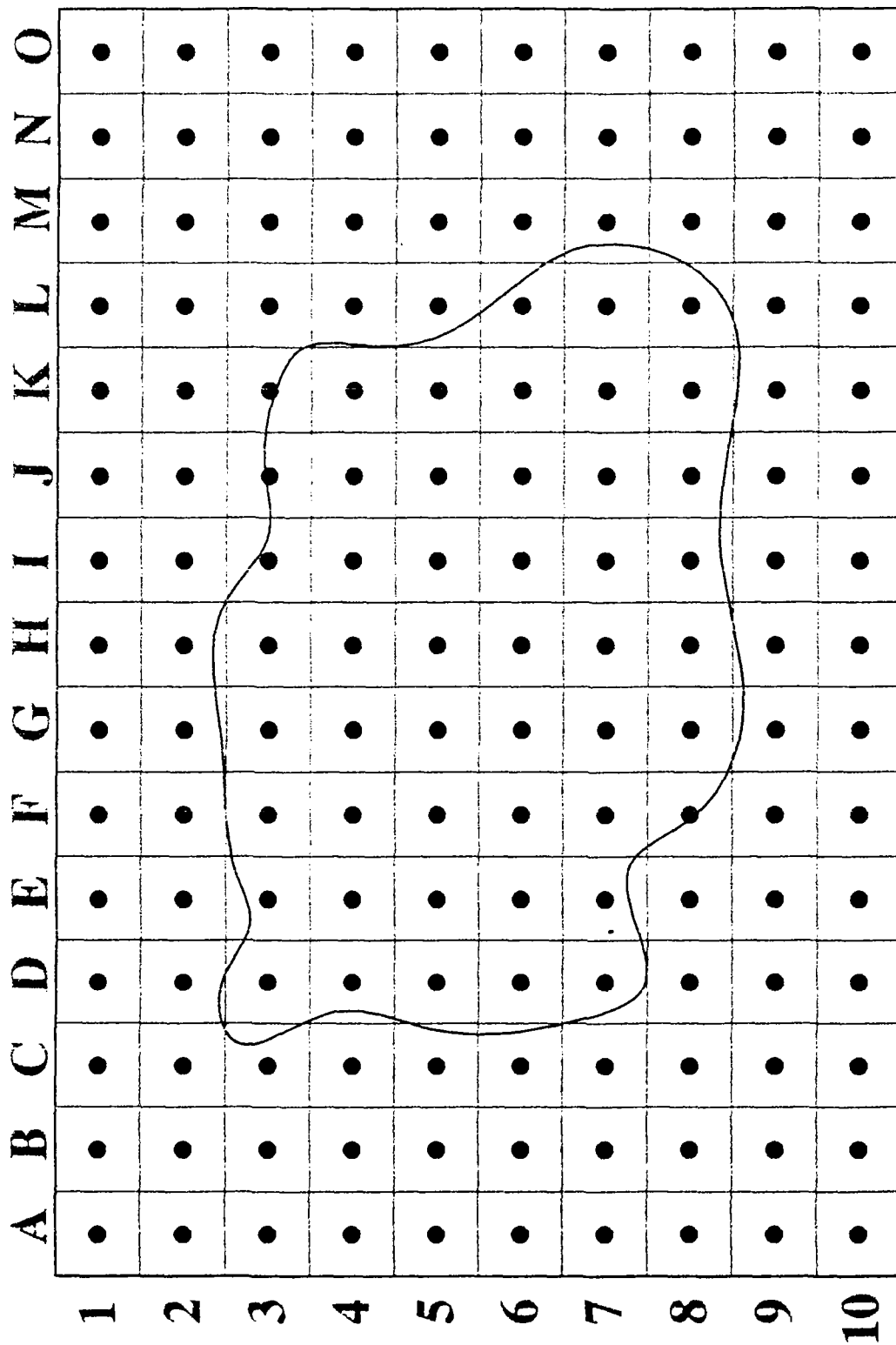
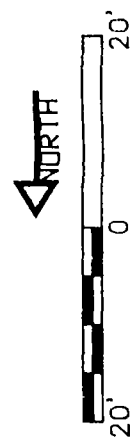


FIGURE 3-1  
 SAMPLE LOCATION MAP  
 CHICAGO HEIGHTS IRON & SUPPLY CO.  
 CHICAGO HEIGHTS, ILLINOIS



2. Based on the preliminary area of 100-ft by 150-ft, approximately one confirmation sample per 1000 sq ft will be collected.
3. All samples will be labeled with the site, date, time, and sample grid location, and initialed by sampler. All samples will be placed in individual plastic bags and sealed to avoid cross contamination, and immediately placed in a cooler with ice. Care will be taken in filling the coolers to avoid breakage. A chain of custody will accompany the samples to the laboratory.
4. Between samples, the sampling equipment will be cleaned with the following protocol:
  - Alconox Wash with potable water
  - Tap water dip rinse
  - Mercury decontamination solution
  - Tap water dip rinse, separate container
  - Distilled water spray rinse
  - Air Dry
5. The samples will be shipped to Test America's Bartlett Laboratory for analysis of total mercury using method SW846 – 7471A, which has a method detection limit of 0.04 mg/kg. In addition, the soil pH and % solids will be measured, so that it can be determined whether the soil migration to ground water pathway objectives are achieved and to report the results on a dry weight basis.
6. Duplicates will be collected for mercury and pH on one in ten samples. Field blanks and trip blanks will be collected daily when conducting confirmation sampling.
7. Test America will provide results three working days from receipt. This will allow time for retesting if the results are outside of the calibration range, and the completion of the necessary QA/QC checks as described in the QAPP.
8. Any confirmation samples above the objectives will necessitate further soil removal and additional confirmation testing.

#### **4. SOIL CLEANUP OBJECTIVES**

The Chicago Heights Iron & Supply facility is located in an industrial area, surrounded by industrial properties. Response actions conducted by Nicor at the site will be deemed complete upon satisfaction of appropriate commercial/industrial remediation objectives for mercury as provided at 35 Ill. Adm. Code Part 742. For reference purposes, the Tier 1 commercial/industrial remediation objective for mercury are as follows:

##### **Ingestion**

Industrial/Commercial Objective (I/C)	610 mg/kg
Construction Worker Objective (CW)	61 mg/kg

##### **Inhalation**

Industrial/Commercial Objective (I/C)	540,000 mg/kg
Construction Worker Objective (CW)	52,000 mg/kg

Soil migration to ground water

<u>Soil pH</u>	<u>Total Mercury, mg/kg</u>
4.5 to 4.74	0.01
4.75 to 5.24	0.01
5.25 to 5.74	0.03
5.75 to 6.24	0.15
6.25 to 6.64	0.89
6.65 to 6.89	2.1
6.90 to 7.24	3.3
7.25 to 7.74	6.4
7.75 and above	8.0

Nicor shall utilize the remediation objectives provided above or establish site specific standards or remediation strategies consistent with the requirements of 35 Ill. Adm. Code Part 742.

## 5. CONTRACTOR AND SCHEDULE

Heritage Industrial Services, L.L.C. will be the removal contractor under the direction of Huff & Huff, Inc., consultant to Nicor Gas. Mercury Waste Solutions, Inc., in Union Grove, Wisconsin will serve as a subcontractor to Heritage Industrial Services for this project. A crane operator will be provided with the crane; however, the specific firm has not been finalized. Test America will conduct the analytical work.

Based upon the coordination requirements, the Contractor will mobilize to the site no later than three days after authorization from U.S. EPA and site access is secured. The scrap metal removal is expected to take two days, the soil screening/soil removal two days, and confirmation sampling one day. Analytical results will be obtained in three business days. Thus, the following schedule is planned:

	<u>Business Days</u>
- Authorization to Proceed .....	0
- Mobilize to Site.....	3
- Complete Scrap Metal Removal .....	5
- Soil Screening and Soil Removal .....	7
- Confirmation Testing.....	8
- Analytical Results Received .....	11
- Remobilize to Site.....	14
- Complete Soil Removal .....	15
- Confirmation Testing.....	16
- Analytical Results Received .....	19

Thus, approximately three weeks will be needed to complete the work at this facility. Remedial Action Completion Report will be prepared and issued within six weeks of completion of the removal action. This will allow time for receiving return manifests, processing at Waste Mercury Solutions (which is limited to one rolloff box per day), and landfilling at EQ.





## **Mercury Waste Solutions, Inc.**

21211 Durand Avenue  
Union Grove, Wisconsin 53182-9711  
800-741-3343 or direct at (414) 878-2599  
414-878-2699 fax  
[www.mwsi.com](http://www.mwsi.com)

### **Summary Information**

<b>Location:</b>	21211 Durand Avenue Union Grove, WI 53182
<b>Telephone:</b>	(800) 741-3343 (414) 878-2599
<b>Fax:</b>	(414) 878-2699
<b>Federal EPA ID#:</b>	WIR000000356
<b>State ID#:</b>	Not Applicable
<b>Owned By:</b>	Mercury Waste Solutions, Inc.
<b>Ownership Type:</b>	Publicly held Corporation Traded on NASDAQ as MWSI

### **Site Description:**

Mercury Waste Solutions, Inc. (MWSI) operates a 25,000 sq. ft. mercury recycling facility located in Union Grove, WI (One hour North of Chicago). MWSI is a fully permitted facility receiving mercury waste streams from all over U.S. and Canada. Clients of MWSI include Fortune 500 companies, lighting manufacturers, laboratories, environmental service providers, as well as government agencies and general industry.

MWSI handles most types of mercury bearing articles, devices, debris, and compounds. MWSI offers the largest processing capacity in the United States. This capacity includes;

**Stationary Retort Processing** - Each of our three (3) retort systems handles up to thirty (30) 55 gallon drums per batch process.

**Continuous Flow Retort Processing** - Mercury Waste Solutions proprietary technology is designed for flowable solids which includes contaminated soils. This proven technology allows MWSI the ability to process over ten tons of mercury contaminated material per day.

**Fluorescent Lamp Recycling** - A fully enclosed operation which involves the separation of mercury from fluorescent lamps. All the components of a fluorescent lamp are recycled. Daily capacity exceeds 20,000 lamps.

**Mercury Distillation and Resale** - MWSI offers mercury distillation for toll and resale.



## **General Overview**

Mercury Waste Solutions, Inc. ("the Company") provides services to mercury waste generators to reduce the risk of liability associated with mercury waste disposal. The Company currently operates a mercury waste retorting facility in Union Grove, Wisconsin, a facility for recycling and storing fluorescent and other mercury-containing lamps in Roseville, Minnesota, mercury waste storage and collection facilities in Indianapolis, Indiana and Atlanta, Georgia, and a Part B permitted storage facility for mercury bearing waste streams in Albany, New York.

On January 4, 1996, the Company acquired substantially all of the assets of U.S. Environmental, Incorporated, a Minnesota-based mercury recycling company ("USE") founded in 1993 by Mark G. Edlund, the Company's President and Chief Operating Officer. USE co-developed the Model 2000 lamp recycler (the "Model 2000"), opened a mercury lamp recycling facility in Roseville, Minnesota (the "Roseville Recycling Facility") to showcase the Model 2000 and co-developed the mercury retorting equipment installed at a facility in Union Grove, Wisconsin, (the "Union Grove Retorting Facility"). Since the acquisition of USE, the Company improved the Model 2000 (hereinafter referred to as the "Model 2000B"), developed a new continuous flow oven and a stationary oven utilized at the Union Grove Retorting Facility and in September, 1996 acquired the interests of the co-developer of the equipment located at the Union Grove Retorting Facility.

In September, 1997, the Company acquired certain assets and liabilities of Ballast & Lamp Recycling, Inc. ("BLR"). The primary business of BLR is the collection and storage of mercury-containing lamps and lamp ballasts for recycling. BLR has collection facilities in Indianapolis, Indiana and Atlanta, Georgia. The acquisition of BLR increased the Company's customer base, placed the Company in what the Company believes are two additional strategic and growing markets and leveraged the Company's processing capacity.

In May, 1998, the company acquired certain assets and assumption of certain liabilities of Mercury Refining Company, (Mereco) located in Albany, New York. Mereco had been one of the nation's leading mercury recovery companies for over 40 years.

The Company's mission is to provide mercury waste recycling solutions to mercury waste generators of all sizes including, but not limited to, public utilities, manufacturers that utilize mercury in their business (e.g., measurement, control and electrical equipment industries), building managers and hazardous waste managers. In addition to current federal and state regulations which provide strict guidelines regarding the disposal of all mercury-containing products, many county and local governments have begun to strictly regulate mercury wastes due to the growing recognition of the serious health risks of mercury. The Company believes that most businesses which generate mercury wastes have now recognized the large potential legal liability from the improper handling and disposal of mercury-containing wastes and are motivated to reduce potential hazardous waste liability. By offering disposal solutions for all types of mercury-containing products, from mercury lamp recycling to mercury waste retorting, the Company serves a broad scope of the mercury waste disposal market.

## **Services and Products**

The Company is in the business of providing mercury waste recycling solutions to mercury waste generators of all sizes. The Company's recycling service operations consist of the following:

### **Mercury Retorting**

In 1997, approximately 50% of the Company's business consisted of fees paid for retorting mercury waste to environmentally safe levels. Retorting is the process by which mercury is separated from the contaminated waste through the process of distilling. The Company has developed proprietary processes which recover approximately 99.99% of available mercury from the processed waste. The processed waste contains less than one part per million of mercury which satisfies current federal and state environmental standards for mercury waste and requires no further treatment as hazardous waste. Mercury recovered in the retorting process is sold for a nominal price to a distiller.

The Company's mercury retorting facility in Union Grove, Wisconsin utilizes a "continuous flow" concept developed by the Company which allows the facility to process more mercury waste in a shorter period of time than other conventional methods presently utilized. Other companies retort mercury primarily by placing 55 gallon drums filled with mercury-contaminated waste, each weighing up to 700 pounds, in a retorting oven for approximately 24 hours. Typical retorting ovens can only hold one or two drums and need increased capacity to process more drums. The Company believes that this technology causes other retorting companies to be relatively expensive and backlogged. With a relatively heavy and dense powder such as calcium phosphate generated from fluorescent lamps, the Company believes that retorting is more effective if the mercury-laced powder is spread out evenly during processing.

The Company's continuous flow concept automatically feeds the powder (or other granular material such as soil and items such as batteries and switches up to 3 inches in diameter) through the oven. The electrically powered oven is heated to a temperature sufficient to release the mercury from its device and vaporize it. Negative air flow pulls the vapors through a series of condensers where mercury is returned to liquid form. The air flow proceeds through two carbon filters and a wet scrubber to remove any other potential impurities resulting from the heating process. While the typical stationary oven utilized by the Company's competitors may require approximately 24 hours to process mercury-laced calcium phosphate powder because of the significant amount of time required to sufficiently heat and cool large, dense drums of mercury-laced waste, the Company's continuous flow oven requires less than one hour to process the same amount of mercury-laced waste.

In addition to its new continuous flow retorting technology, the Company utilizes three high capacity electrically powered stationary ovens that can retort up to 30 drums each simultaneously. While the Company's continuous flow oven works well with granular compounds such as powder and items less than 3 inches in diameter, the stationary oven is able to process certain larger mercury-containing items such as switches, batteries, thermostats, and filters.

## **Waste Storage Facilities**

Because governmental regulations limit the amount of mercury waste that can be present at a retorting facility at any given time, many generators of mercury waste are required to store such waste in a temporary hazardous waste storage facility prior to shipment to a retorting facility or permanent hazardous waste disposal site.

In 1997, the Company was unable to store mercury-containing waste at the Union Grove Retorting Facility for more than a 24 hour period due to governmental regulations which caused logistical problems for the Company regarding the scheduling and delivery of mercury waste. To address this limitation, the Company expanded the Union Grove Retorting Facility which includes an area to store approximately 181 drums of hazardous mercury waste. In May, 1997, the Company applied for a hazardous waste storage permit from the Wisconsin Department of Natural Resources (DNR). Currently the application is being reviewed by the DNR. In March, 1998, the DNR granted the Company a variance which will allow the Company to store up to 181 drums of hazardous waste. The variance will remain in effect until the DNR issues the final hazardous waste storage permit.

In October, 1997 the Company also established a 10 day mercury waste transfer and storage facility in Kenosha, Wisconsin (approximately 15 miles from the Union Grove Retorting Facility) that has a storage capacity for approximately 250 drums of universal and hazardous waste. The acquisition of BLR also provided 10 day mercury waste transfer and universal waste collection facilities in Indianapolis, Indiana and Atlanta, Georgia.

In May, 1998, the company acquired certain assets and assumption of certain liabilities of Mercury Refining Company, (Mereco) located in Albany, New York. Mereco had been one of the nation's leading mercury recovery companies for over 40 years. This Part B permitted storage facility has a capacity of 888 drums.

## **Lamp Recycling**

The Company owns and operates the Roseville Recycling Facility located in Roseville, Minnesota, a St. Paul suburb, which utilizes a Model 2000B to recycle fluorescent lamps. Fluorescent lamps are primarily transported to the Roseville Recycling Facility by Company-owned trucks that pick up fluorescent lamps directly from the Company's customers in Minnesota, western Wisconsin, northern Iowa and the eastern sections of the Dakotas. With the BLR acquisition, lamps are transported weekly from the Indianapolis and Atlanta collection and storage facilities to the Roseville Recycling Facility.

Fluorescent lamps are then processed by the Model 2000B. Fluorescent lamps are manually placed onto a conveyor belt which feeds the lamps into an enclosed machine. The Model 2000B operates under negative air flow to limit the escape of mercury vapors. The Model 2000B breaks the lamps and separates the debris into three principal components: the broken glass, the aluminum endcaps and the mercury-laced calcium phosphate powder. Before the glass or aluminum endcaps remaining after processing can leave the facility they must be independently tested for mercury content and pass state regulatory standards. The Company sends the mercury-laced calcium phosphate powder to the Union Grove Retorting Facility for retorting. Any mercury that evaporates during the Model 2000B's lamp processing is captured in hepa and carbon filters. These filters are also sent to the Union Grove Retorting Facility for retorting.

In addition to the collection and recycling of fluorescent lamps, the Company handles related types of waste, consisting primarily of PCB and non-PCB ballasts. Ballasts are an integral component of the fluorescent light fixture. Ballasts manufactured before 1979 contain PCB's.

In conjunction with the Union Grove Retorting Facility expansion, the Company developed and installed a prototype Model 3000 lamp recycling machine, which is a second generation model of the 2000B. The machine was installed to increase lamp processing capacity due to growth in local markets and to minimize the transportation cost of transporting lamps from its Indianapolis and Atlanta facilities.



## **Mercury Waste Solutions, Inc.**

21211 Durand Avenue  
Union Grove, Wisconsin 53182-9711  
800-741-3343  
414-878-2699 fax  
[www.mwsi.com](http://www.mwsi.com)

**Corporate Headquarters:**  
302 North Riverfront Drive  
Mankato, MN 56001-3548  
507.345.0522 voice  
507.345.1483 fax

**National Processing Center:**  
21211 Durand Avenue  
Union Grove, WI 53182-9711  
WIR000000356  
414.878.2599 voice  
414.878.2699 fax  
800.741.3343 toll free

**Midwest Regional Service Center:**  
1304 West Troy Avenue  
Indianapolis, IN 46225  
IND000113597  
317.782.3228 voice  
317.784.4778 fax

**Northeast Regional Service Center:**  
26 Railroad Avenue  
Albany, NY 12154  
NYD048148175  
518.664.9070 voice  
518.664.1579 fax

**Midwest Regional Sales Office:**  
816.554.8080 voice  
816.554.8787 fax

**Northeast Regional Sales Office:**  
518.664.9070 voice  
518.664.1579 fax

**Southeast Regional Service Center:**  
2112 Northwest Parkway SE  
Marietta, GA 30067  
GAR000007013  
770.953.8000 voice  
770.953.8100 fax  
800.699.2895 toll free

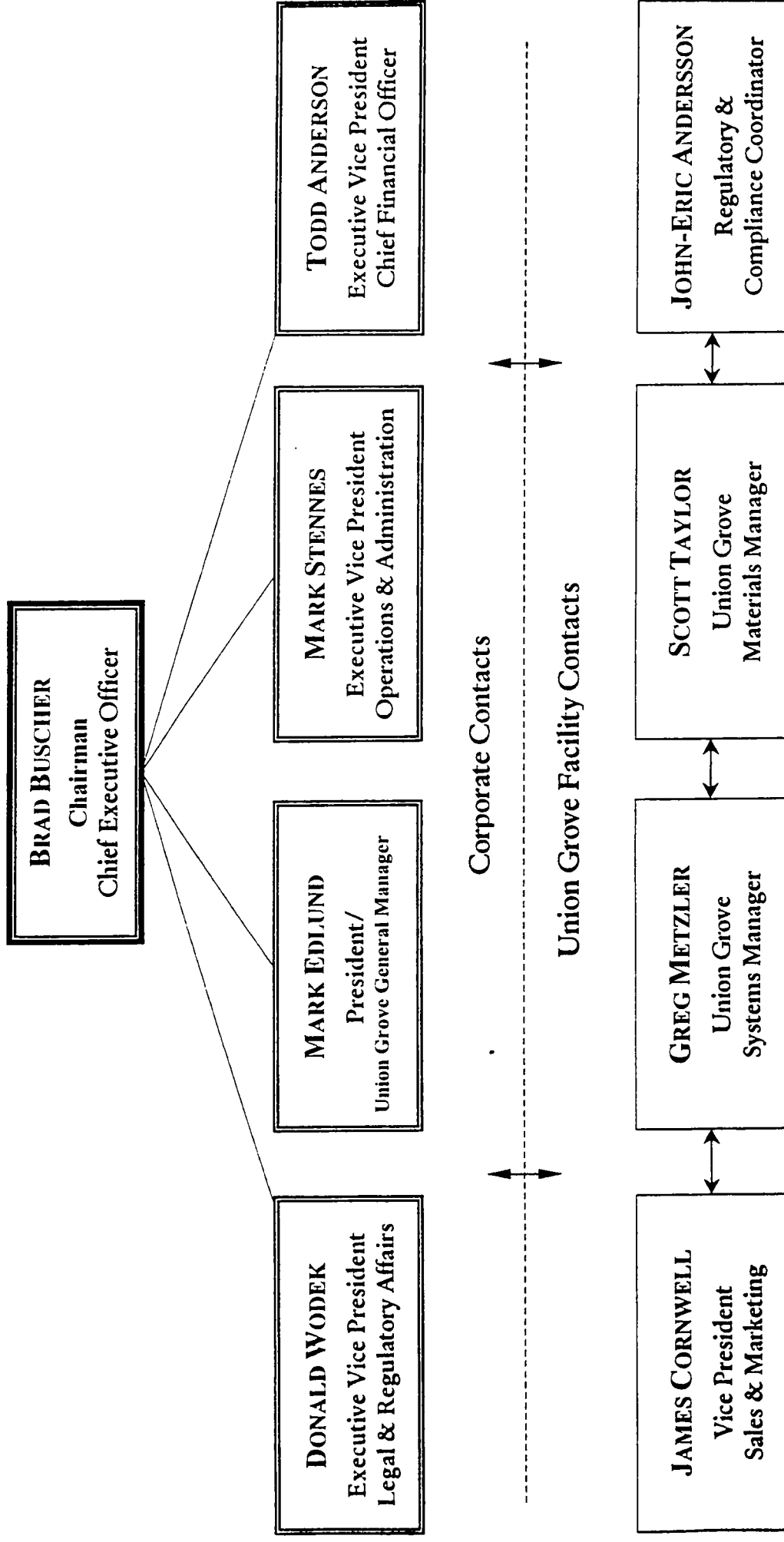
**Upper Midwest Regional Service Center:**  
2007 West County Road C-2  
Roseville, MN 55113-1211  
MND985759315  
651.628.9370 voice  
651.628.9371 fax

**Southwest Regional Sales Office:**  
602.706.6200 voice  
602.706.6224 fax

**Southeast Regional Sales Office:**  
770.888.8688 voice  
770.888.8688 fax

# Mercury Waste Solutions, Inc.

## Corporate Organizational Structure







**Mercury Waste  
Solutions, Inc.**

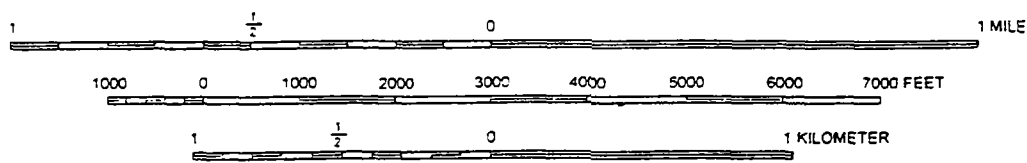
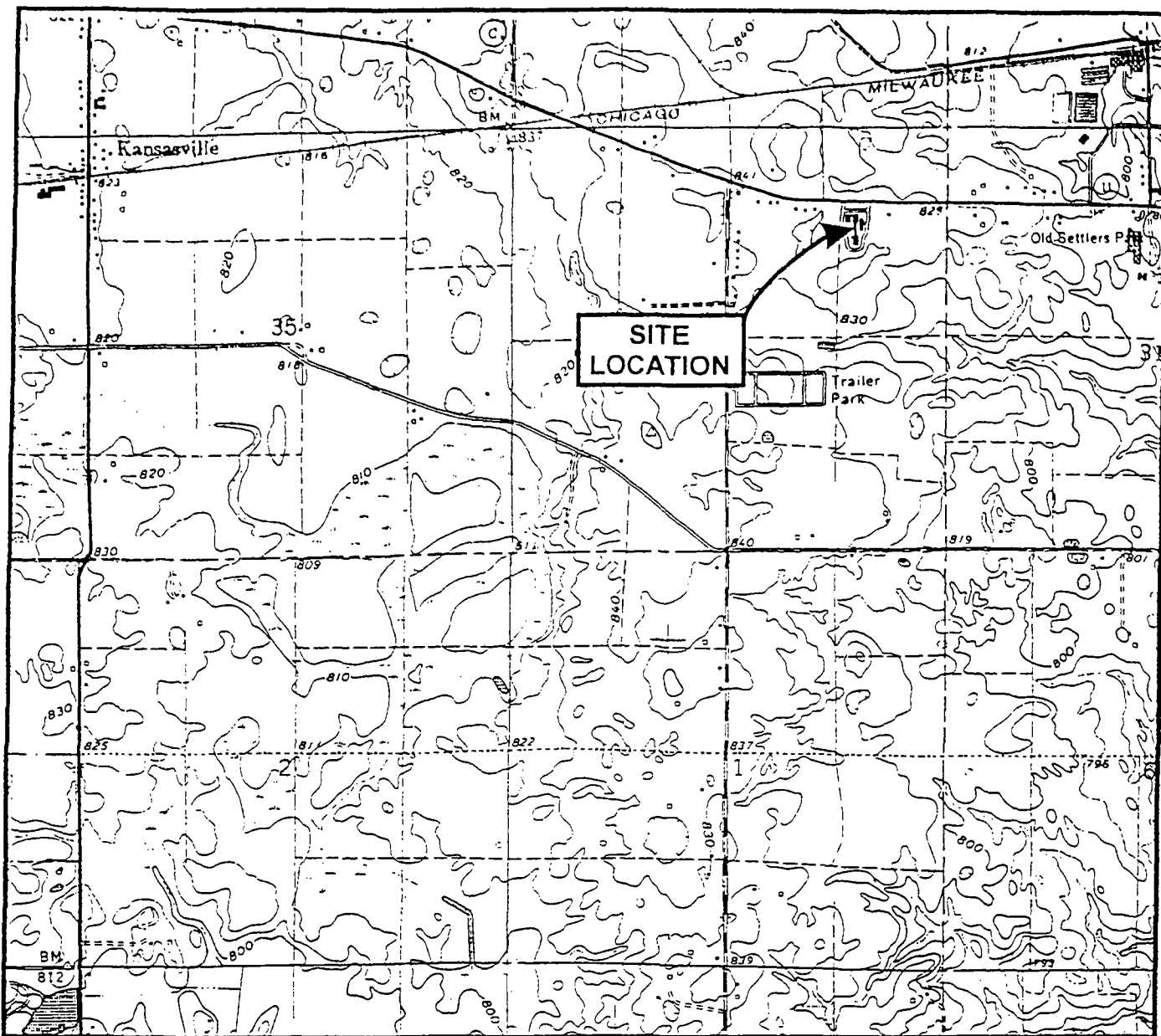
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Union Grove, Wisconsin 53182-9711  
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BFI  
Chem Met Services  
Clean Harbors  
Crosby & Overton  
Columbia Gulf Enesco  
EcoFlo  
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Arkansas Gas  
Eltex Chemical  
EOG Environmental  
Essex  
Waste Management  
Essex Group  
Everbrite  
Heritage Environmental  
Hines Amway  
Hydrite Chemical  
Illinois Power  
Kinsbursky Brothers  
Lab Safety Supply  
Medtronic  
Milsolv Corporation  
NIPSCO  
Norwest Banks  
Philip Environmental  
Rayovac  
Safety-Kleen



SCALE 1 : 24 000  
CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL



QUADRANGLE LOCATION

FILE/PATH:	C:\FIGURES\OLR\
UNION CDR	
DATE:	3/28/97
PREPARED:	MLW
APPROVED:	
SOURCE:	USGS QUADRANGLE - 7.5 MINUTE SERIES, UNION GROVE, WI, 1960

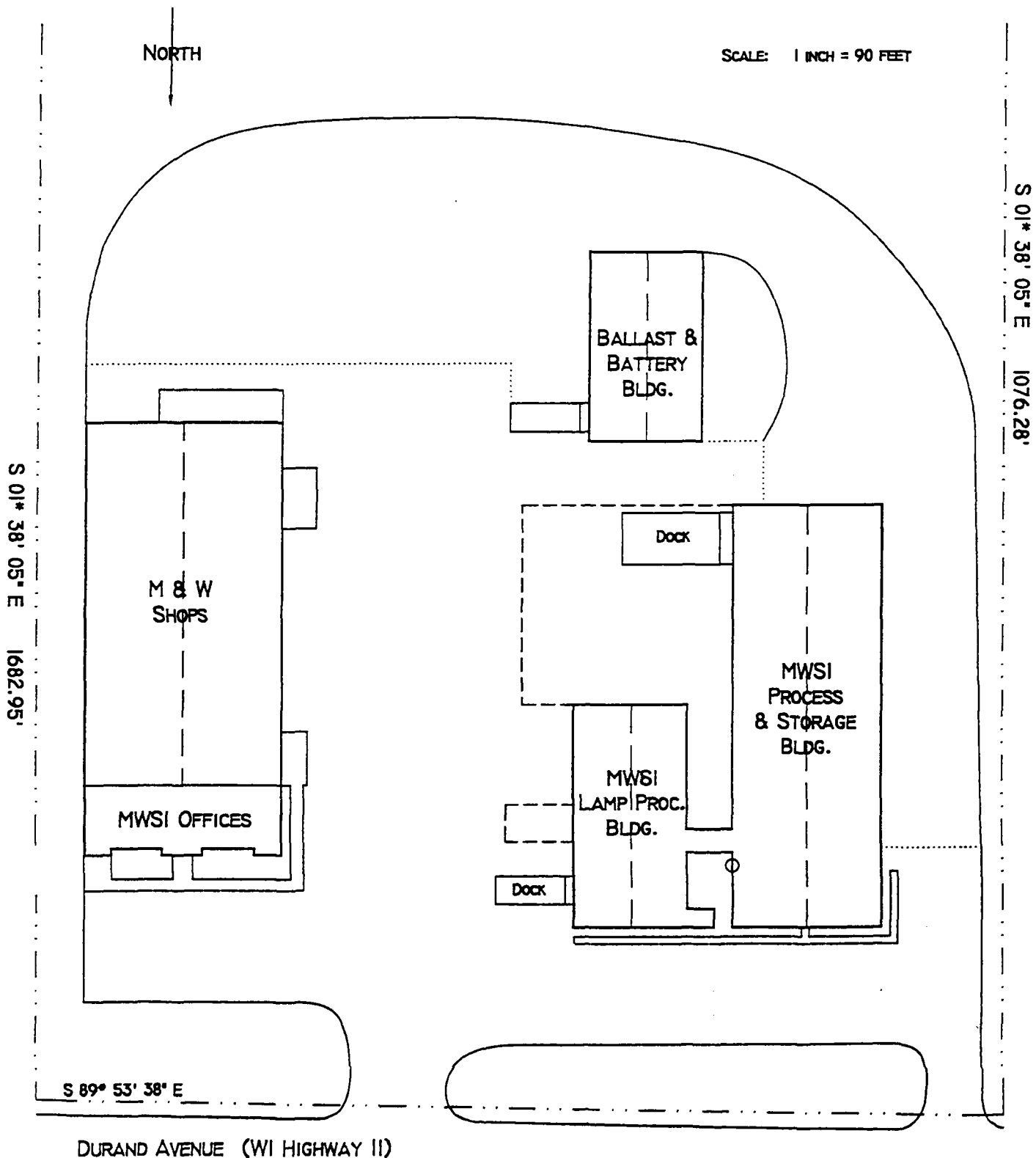
**LIESCH**  
LIESCH ENVIRONMENTAL SERVICES, INC.  
6000 GISHOLT DRIVE, SUITE 203  
MADISON, WI 53713

SITE LOCATION  
MERCURY WASTE SOLUTIONS  
21209 DURAND AVENUE  
UNION GROVE, WISCONSIN

FIGURE

1

MERCURY WASTE SOLUTIONS, INC.  
UNION GROVE FACILITY SITE LAYOUT





## **Mercury Waste Solutions, Inc.**

21211 Durand Avenue  
Union Grove, Wisconsin 53182-9711  
800-741-3343  
414-878-2699 fax  
[www.mwsi.com](http://www.mwsi.com)

**Location:** 21211 Durand Avenue  
Union Grove, WI 53182

**Telephone:** (800) 741-3343  
(414) 878-2599

**Fax:** (414) 878-2699

**Federal EPA ID#:** WIR000000356  
**State ID#:** Not Applicable

**Owned By:** Mercury Waste Solutions, Inc.  
**Ownership Type:** Publicly held Corporation  
Traded on NASDAQ as MWSI

**Hours of Operation:** 24 hours per day, seven (7) days per week (excluding holidays).  
**Receiving Hours:** Monday through Friday. 7:30 a.m. through 5:00 p.m.

### **Site Description:**

Mercury Waste Solutions, Inc. (MWSI) operates a 25,000 sq. ft. mercury recycling facility located in Union Grove, WI (One hour North of Chicago). MWSI is a fully permitted facility receiving mercury waste streams from all over U.S. and Canada. Clients of MWSI include Fortune 500 companies, lighting manufacturers, laboratories, environmental service providers, as well as government agencies and general industry.

MWSI handles most types of mercury bearing articles, devices, debris, and compounds. MWSI offers the largest processing capacity in the United States. This capacity includes;

**Stationary Retort Processing** - Each of our three (3) retort systems handles up to thirty (30) 55 gallon drums per batch process.

**Continuous Flow Retort Processing** - Mercury Waste Solutions proprietary technology is designed for flowable solids which includes contaminated soils. This proven technology allows MWSI the ability to process over ten tons of mercury contaminated material per day.

**Fluorescent Lamp Recycling** - A fully enclosed operation which involves the separation of mercury from fluorescent lamps. All the components of a fluorescent lamp are recycled. Daily capacity exceeds 20,000 lamps.

**Mercury Distillation and Resale** - MWSI offers mercury distillation for toll and resale.

# WEEKLY FACILITY INSPECTION LOG SHEET

## MERCURY WASTE SOLUTIONS, INC.

Page 1

### GENERAL FACILITY \*\* (Universal & Non-Regulated Waste Storage Areas)

Inspector's Name: \_\_\_\_\_

Date & Time of Inspection: \_\_\_\_\_

ITEM	POTENTIAL PROBLEMS	STATUS		OBSERVATIONS	DATE AND NATURE OF REPAIRS/REMEDIAL ACTIONS
		U*	A		
Container placement & stacking	Aisle Space (30" minimum) Height of stacks (3 containers maximum for solids, 2 containers maximum for liquids)				
Housekeeping, debris & refuse	Aesthetics				
Sealing of containers	Opens lids, bungs				
Container condition	Corrosion, leakage, structural defects				
Labeling of containers	Visibility, improper identification, label missing, date missing				
Pallets	Structural integrity				

\* Note if items stated for repair or action during the previous week were resolved.

\*\* Daily spot checks are made by employees during normal hours while handling waste drums.

# WEEKLY FACILITY INSPECTION LOG SHEET

## MERCURY WASTE SOLUTIONS, INC.

Page 2

### PERMITTED STORAGE AREA \*\*

Inspector's Name: \_\_\_\_\_

Date & Time of Inspection: \_\_\_\_\_

ITEM	POTENTIAL PROBLEMS	STATUS		OBSERVATIONS	DATE AND NATURE OF REPAIRS/REMEDIAL ACTIONS
		U*	A		
Permitted Storage Area ramps, walls, and floor	Cracks, spalling				
Permitted Storage Area housekeeping	Aesthetics				
Permitted Storage Area container placement & stacking	Stacks leaning, leaks				
Permitted Storage Area container condition & labeling	Corrosion, leakage, visibility, improper identification.				
Loading/Unloading Area**	Spillage				

\* Note if items stated for repair or action during the previous week were resolved.

\*\* Daily spot checks are made by employees during normal hours while handling waste drums.



# WEEKLY FACILITY INSPECTION LOG SHEET

## MERCURY WASTE SOLUTIONS, INC.

Page 3

### COMMUNICATIONS & SECURITY \*\*

Inspector's Name: \_\_\_\_\_

Date & Time of Inspection: \_\_\_\_\_

ITEM	POTENTIAL PROBLEMS	STATUS		OBSERVATIONS	DATE AND NATURE OF REPAIRS/REMEDIAL ACTIONS
		U*	A		
Telephone System	Power failure, check calls, accessibility				
Alarm System	Power failure, malfunction, false alarm.				
Emergency Response Equipment	Low inventory, accessibility, requires service.				
Fire Extinguishers	Expires, needs recharging, accessibility, seals in place, hose connected, requires inspection for retagging.				
Security	Damage, locks				

\* Note if items stated for repair or action during the previous week were resolved.

\*\* Daily spot checks are made by employees during normal hours while handling waste drums.

# MWSI Training Requirements

## Initial Training:

Initial training is mandatory for all MWSI facility employees. This mandatory training includes the following;

<u>Subject of Training</u>	<u>Content Source</u>
OSHA 40 Hour Hazardous Waste Site Operations	29 CFR 1910.120 (p)
Hazard Communication	29 CFR 1910.1200
RCRA Program Training	WDNR
HM-181 Hazard Materials Transportation	49 CFR HM-126F
CPR & First Aid	MWSI
Emergency/Evacuation Procedures	MWSI
Facility Health and Safety Protocols	MWSI
Facility Standard Operating Procedures	MWSI

Copies of the training program for the 40-Hour OSHA training, Hazard Communication training, RCRA training, DOT training, and technical operations training are available for review from the Regulatory Affairs Department at MWSI.



## **Mercury Waste Solutions, Inc.**

21211 Diamond Avenue, Union Grove, Wisconsin 53182-9711

Phone: 414-878-2599

Fax: 414-878-2699

[www.mwsi.com](http://www.mwsi.com)

## **Final Disposal Facilities**

Facility wastes and process residuals from standard operations are sent to the following locations.

### **Non-Regulated Materials**

---

#### **Glass Recycling:**

Crushed glass recovered from fluorescent lamp separation process.

Strategic Materials, Inc.  
12305 W. Silver Spring Road  
Milwaukee, WI 53225  
(414) 464-3003

#### **Retort Residuals:**

Retort residuals from Stationary and Continuous Flow processes.

Superior Emerald Park Landfill, Inc.  
W 124 S 10629, South 124<sup>th</sup> Street  
Muskego, WI 53150  
(414) 529-1360

#### **Scrap Aluminum Recycling:**

Aluminum end caps and scraps recovered from fluorescent lamp separation and retort processes.

Reynolds Aluminum, Inc.  
5914 North Teutonia Avenue  
Milwaukee, WI  
(414) 464-3221

#### **Scrap Metals Recycling:**

Scrap metals recovered from various facility operations and processes.

ACME, Inc.  
2104 N. Sylvania Avenue  
Sturtevant, WI  
(414) 835-2662

#### **Container Reconditioning:**

Excess empty shipping containers from facility operations and incoming shipments.

Mid-America Steel Drum Company, Inc.  
8570 South Chicago Road  
Oak Creek, WI 53154  
(414) 762-1623

#### **General Refuse:**

Standard waste generated by facility operations and office activities.

Superior Emerald Park Landfill, Inc.  
W 124 S 10629, South 124<sup>th</sup> Street  
Muskego, WI 53150  
(414) 529-1360

### **Regulated Materials**

---

#### **Retort Waste Water:**

Low-subcategory D009 waste water produced by retort process collection systems.

Heritage Environmental Services, Inc.  
7901 West Morris Street  
Indianapolis, IN 46231  
(800) 827-4374

#### **Regulated Retort Residuals:**

Retort process residuals carrying additional EPA Hazardous Waste Codes.

EQ (Environmental Quality), Inc.  
Wayne Disposal, Inc. – Subtitle C Landfill  
49350 N. I-94 Service Drive  
Belleville, MI 48111  
(800) 592-5489

✧ Alternate MWSI-approved properly permitted TSDFs may be used at customer request.



**Mercury Waste  
Solutions, Inc.**

21211 Durand Avenue  
Union Grove, Wisconsin 53182-9711  
800-741-3343  
414-878-2699 fax  
[www.mwsi.com](http://www.mwsi.com)

**MWSI BALLAST RECYCLING**

**Processing Location:**

**MWSI**  
21211 Durand Avenue  
Union Grove, WI 53182  
(800) 741-3343  
WIR000000356

**Processing and Storage Area:  
Storage Capacity:**

3,000 sq. ft.  
250 drums (55 gallon)

**Final Disposal Facilities:**

**Capacitors:  
Leaking Ballasts:**

Safety-Kleen, Inc.  
2027 Battleground Road  
Deer Park, TX 77536  
(713) 930 - 2410  
TXD055141378

**Potting Material:**

US Ecology  
P.O. Box 578  
Hwy 95  
Beatty, NV 89003  
(800) 239-3943  
NVT330010000

**Scrap Metal:**

ACME, Inc.  
2104 N. Sylvania Avenue  
Sturevant, WI  
(414) 835-2662

**Container Reconditioning:**

Mid-America Steel Drum Company, Inc.  
8570 South Chicago Road  
Oak Creek, WI 53154  
(414) 762-1623

# Mercury Waste Solutions, Inc.

## WASTE MATERIAL PROFILE (F)

Approval #:

(Office Use Only)

### I. GENERATOR INFORMATION

GENERATOR NAME:	_____	BROKER NAME:	_____
GENERATOR ADDRESS:	_____	BROKER CONTACT:	_____
	_____	BROKER PHONE:	_____
GENERATOR CONTACT:	_____		
GEN. PHONE:	_____	GEN. FAX:	_____
	_____	GEN. EPA ID #:	_____
WASTE DESCRIPTION:	_____		
COMMON NAME:	_____		
PROCESS GENERATING WASTE:	_____		
	_____		

### II. WASTE CHARACTERIZATION

#### CONSTITUENTS: (Must be $\geq 100\%$ )

_____	-	_____ %	_____	-	_____ %
_____	-	_____ %	_____	-	_____ %
_____	-	_____ %	_____	-	_____ %
_____	-	_____ %	_____	-	_____ %

#### PROPERTIES:

Liquid: _____ %	Density: _____ lbs/gal	Special Handling Requirements: (if applicable)
Solid: _____ %	pH: _____	
Sludge: _____ %	Flashpoint: _____ °F	

#### SHIPPING INFORMATION:

Proper DOT Shipping Name: \_\_\_\_\_

Hazard Class: _____	UN/NA Number: _____	Packing Group: _____	ERG #: _____
Reportable Quantity: _____	EPA Hazardous Waste Codes (if applicable): _____		

### III. WASTE MATERIALS METAL CONTENT

METALS:	LEVELS (ppm or mg/l):	METALS:	LEVELS (ppm or mg/l):
Arsenic	_____	Barium	_____
Cadmium	_____	Chromium	_____
Lead	_____	Mercury	_____
Selenium	_____	Silver	_____
Nickel	_____	Thallium	_____
Copper	_____	Zinc	_____

### IV. PACKAGING INFORMATION

_____	Type/Size: _____	Cu Yd Box: <input type="checkbox"/>	Cu Yd Bag: <input type="checkbox"/>
_____ (please describe): _____			
Anticipated Volume per Shipment: _____			
Anticipated Volume per Year: _____			

# Mercury Waste Solutions, Inc.

## V. WASTE MATERIALS INCLUDED

For materials marked with an (\*) please provide additional detail in the space provided below.

- |  |   |  |   |
|--|---|--|---|
| <input type="checkbox"/> Mercury Debris    | <input type="checkbox"/> Thermometers, etc. | <input type="checkbox"/> Regulators        | <input type="checkbox"/> Mercury in Soil  |
| <input type="checkbox"/> Fluorescent Tubes | <input type="checkbox"/> Batteries (Varied) | <input type="checkbox"/> COD Solution      | <input type="checkbox"/> Mercury in Glass |
| <input type="checkbox"/> Phosphate Powder  | <input type="checkbox"/> Mercury Batteries  | <input type="checkbox"/> Solid Compounds*  | <input type="checkbox"/> Mercury in Metal |
| <input type="checkbox"/> Crushed Lamps     | <input type="checkbox"/> Mercury Relays     | <input type="checkbox"/> Liquid Compounds* | <input type="checkbox"/> Carbon           |
| <input type="checkbox"/> HID Lamps         | <input type="checkbox"/> Mercury Switches   | <input type="checkbox"/> Sludges*          | <input type="checkbox"/> Dental Materials |
| <input type="checkbox"/> Other: _____      |   |  |   |

## VI. SPECIAL CHARACTERISTICS

DOES ANY OF THE WASTE MATERIAL CONTAIN ANY OF THE FOLLOWING CHARACTERISTICS?:

	YES	NO
HAZARDOUS CHARACTERISTICS (other than mercury) .....	<input type="checkbox"/>	<input type="checkbox"/>
MERCURY COMPOUNDS (other than oxide or sulfide).....	<input type="checkbox"/>	<input type="checkbox"/>
REACTIVES .....	<input type="checkbox"/>	<input type="checkbox"/>
CORROSIVES (Complete Underlying Hazardous Constituents on LDR Notification) ..	<input type="checkbox"/>	<input type="checkbox"/>
IGNITABLE.....	<input type="checkbox"/>	<input type="checkbox"/>
AQUEOUS SOLUTIONS.....	<input type="checkbox"/>	<input type="checkbox"/>
ORGANIC COMPOUNDS .....	<input type="checkbox"/>	<input type="checkbox"/>
Contains >500 ppm of any 40 CFR Part 261 Appendix VIII Constituents.....	<input type="checkbox"/>	<input type="checkbox"/>

If YES WAS ANSWERED TO ANY ITEM ABOVE, PLEASE EXPLAIN:

## GENERATOR CERTIFICATION

I HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS CONTAIN TRUE AND ACCURATE DESCRIPTIONS OF THE WASTE. ALL RELEVANT INFORMATION REGARDING KNOWN OR SUSPECTED HAZARDS IN THE POSSESSION OF THIS GENERATOR HAS BEEN DISCLOSED.

SIGNATURE

DATE

PRINT OR TYPE NAME AND TITLE



12/16/1999

## PRODUCER

Riedman Corporation  
P.O. Box 3086  
Mankato, MN 56002-3086  
(507) 388-2010 FAX (507) 388-5492

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND  
CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE  
DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE  
POLICIES BELOW.

## COMPANIES AFFORDING COVERAGE

COMPANY A CNA Insurance Company

COMPANY B

COMPANY C

COMPANY D

COMPANY E

## INSURED

Mercury Waste Solutions, Inc.  
302 N. Riverfront Drive  
Mankato, MN 56001

## COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD  
INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS  
CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS,  
EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
<b>A GENERAL LIABILITY</b>				
<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	C155323671	01/01/00	01/01/01	GENERAL AGGREGATE \$ 2,000,000
CLAIMS MADE <input checked="" type="checkbox"/> OCCUR.				PRODUCTS-COMP/OP AGG. \$ 2,000,000
OWNERS' & CONTRACTOR'S PROT.				PERSONAL & ADV. INJURY \$ 1,000,000
<input checked="" type="checkbox"/> Contractual				EACH OCCURRENCE \$ 1,000,000
				FIRE DAMAGE (Any one fire) \$ 50,000
				MED. EXPENSE (Any one person) \$ 5,000
<b>AUTOMOBILE LIABILITY</b>				
<input checked="" type="checkbox"/> ANY AUTO	C155323685	01/01/00	01/01/01	COMBINED SINGLE LIMIT \$ 1,000,000
ALL OWNED AUTOS				BODILY INJURY (Per person) \$
SCHEDULED AUTOS				BODILY INJURY (Per accident) \$
<input checked="" type="checkbox"/> HIRED AUTOS				PROPERTY DAMAGE \$
<input checked="" type="checkbox"/> NON-OWNED AUTOS				EACH OCCURRENCE \$ 2,000,000
GARAGE LIABILITY				AGGREGATE \$ 2,000,000
<b>EXCESS LIABILITY</b>				
<input checked="" type="checkbox"/> UMBRELLA FORM	C155323704	01/01/00	01/01/01	<input checked="" type="checkbox"/> STATUTORY LIMITS
<input checked="" type="checkbox"/> OTHER THAN UMBRELLA FORM				EACH ACCIDENT \$ 500,000
<b>WORKER'S COMPENSATION</b>				DISEASE - POLICY LIMIT \$ 500,000
<b>AND</b>	WCC155323699	01/01/00	01/01/01	DISEASE - EACH EMPLOYEE \$ 500,000
<b>EMPLOYERS' LIABILITY</b>				
<b>OTHER</b>				

## DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Additional Named Insureds: MWS New York, Inc. and MWSI Lamp & Ballast Recycling, Inc.

## CERTIFICATE HOLDER

## CANCELLATION

Information Purposes Only

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE  
EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO  
MAIL \_\_\_\_\_ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE  
LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR  
LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

*Deborah J. Elvick*

HAZARDOUS WASTE FACILITY  
CERTIFICATE OF LIABILITY INSURANCE

American International Specialty Lines Insurance Company, (the "Insurer"), of 401 Plaza Three, Jersey City, NJ 07311, hereby certifies that it has issued liability insurance covering bodily injury and property damage to Mercury Waste Solutions, of 21211 Durand Avenue, Union Grove, WI 53182 in connection with the insured's obligation to demonstrate financial responsibility under s. NR 685.08, Wis. Adm. Code. The coverage applies at: WTR000000356, Mercury Waste Solutions, 21211 Durand Avenue, Union Grove, WI 53182 for sudden and non-sudden accidental occurrences. The limits of liability are \$5,000,000 per occurrence and \$5,000,000 policy aggregate, exclusive of legal defense costs. The coverage is provided under policy number PLS 267 12 44, issued on April 20, 1998. The effective date of said policy is April 20, 1998.

The Insurer further certifies the following with respect to the insurance described above:

Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under this policy.

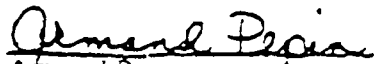
The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in S. NR 685.08(8), Wis. Adm. Code.

Whenever requested by the Department of Natural Resources (DNR), the Insurer agrees to furnish to the DNR a signed duplicate original copy of the policy and all endorsements.

Cancellation of the insurance, whether by the Insurer or the Insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, shall be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the DNR.

Any other termination of the insurance shall be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the DNR.

I hereby certify that the wording of this instrument is identical to the wording specified in s. NR 685.08 (7), Wis. Adm. Code, as the regulation was construed on the date first above written, and that the agent or broker is licensed as a surplus lines insurance agent or broker.

  
Armand Pepin

Treasurer, Authorized Representative of American International Specialty Lines Insurance Company  
401 Plaza Three, Jersey City, NJ 07311

# 4CORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY)

4/20/1998

INSURED

Riedman Corporation  
P.O. Box 3086  
Kato, MN 56002-3086  
(7388-2010 FAX(507)388-5492

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

## COMPANIES AFFORDING COVERAGE

COMPANY

A

AI Specialty Lines Ins. Co.

COMPANY

B

COMPANY

C

COMPANY

D

Mercury Waste Solutions, Inc.  
202 N. Riverfront Drive  
Kankato, MN 56001

## COVERAGE

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR <input type="checkbox"/> OWNERS & CONTRACTORS PROT				GENERAL AGGREGATE \$ PRODUCTS - COM/OP AGG \$ PERSONAL & ADV INJURY \$ EACH OCCURRENCE \$ FIRE DAMAGE (Any one fire) \$ MED EXP (Any one person) \$
<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRE AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE \$
<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EACH ACCIDENT \$ AGGREGATE \$
<b>EXCESS LIABILITY</b> <input type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER THAN UMBRELLA FORM				EACH OCCURRENCE \$ AGGREGATE \$
<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> THE PROPRIETOR/ PARTNER/EXECUTIVE OFFICERS ARE <input type="checkbox"/> INC. <input type="checkbox"/> EXC.				WC STATUTORY LIMITS <input type="checkbox"/> OTHER <input type="checkbox"/> E. EACH ACCIDENT \$ E. DISEASE - POLICY LIMIT \$ E. DISEASE - EA EMPLOYEE \$
<b>OTHER</b> Pollution Liab.	PLS2671244	04/20/98	04/20/01	Incident \$5,000,000 Aggregate \$5,000,000

OPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

## CERTIFICATE HOLDER

## CANCELLATION

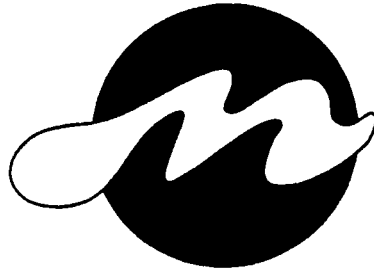
FOR INFORMATION PURPOSES ONLY

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL \_\_\_\_\_ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

*Lois K. Kestler*

4CORD CORPORATION 1998



# *Certificate of Recycling*

***Mercury Waste Solutions, Inc.*** certifies that the following shipment of material is recycled in accordance with all applicable Federal, State and County Regulations.

---

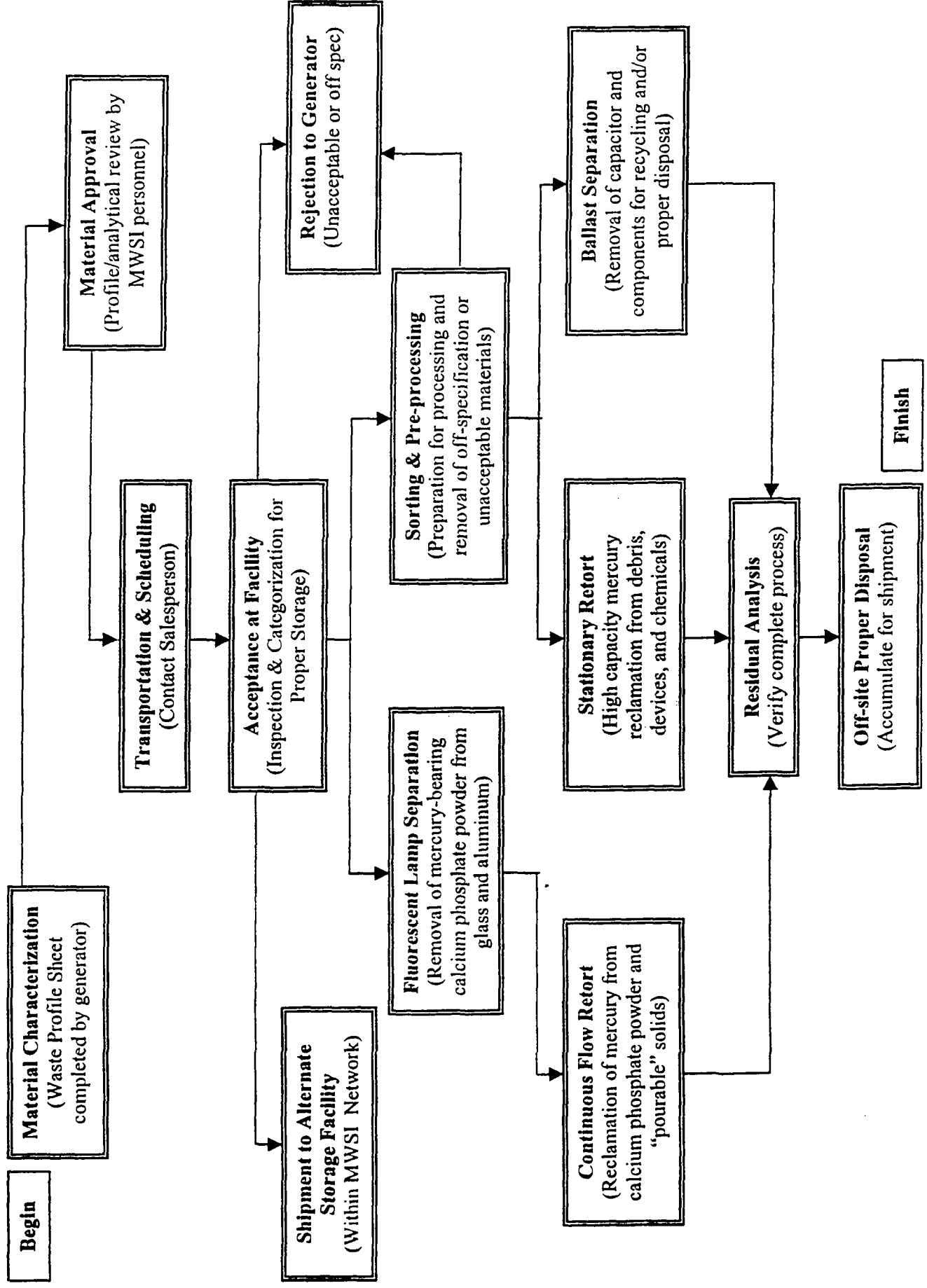
<i>Quantity</i>	<i>Items Received and Recycled</i>	<i>Description</i>
-----------------	------------------------------------	--------------------

---

By: \_\_\_\_\_

Date: \_\_\_\_\_

# MWSI Process Flow Diagram



## Stationary Retort Oven

The chemical and physical properties of elemental mercury make it an essential component of a wide variety of electrical and physical devices; including batteries, thermometers, relays, switches, pressure regulators, etc. Mercury can also be found in waste soils, compounds, solutions, and other less common materials. The same chemical and physical properties that make mercury so versatile in commercial use also make it well suited to recovery by thermal treatment. Mercury is a dense liquid (13.5 times the density of water) at room temperature and boils at approximately 675 °F. The low boiling point allows the liberation of mercury vapor at temperatures far below the boiling points of other heavy metal contaminants potentially present in the materials. Subsequently, the high density and liquid state properties of mercury at room temperature allow distillation recovery of metallic mercury with only a small percentage of impurities.

Each Stationary Retort Oven (Retort) in operation at the MWSI Union Grove facility has processing capacity of twenty five to thirty (25-30) 55-gallon drum equivalents by volume. There are currently three Retorts in operations, giving the Union Grove facility a maximum recycling capacity of ninety (90) 55-gallon drum equivalents of mercury-bearing waste per operating cycle within the stationary systems. The physical characteristics of each oven are as follow:

- *Dimensions:* Cylinder - 8.5' Diameter x 12' Length, access through hinged front door. Door sealed by high-temperature rubber gasket and five steel lock bolts.
- *Composition:* Carbon Steel exterior
- *Powered by:* Electricity.
- *Insulation:* High density refractory ceramic- Rated maximum temperature of 1800°F.
- *Air Flow:* Intake – Manually adjustable valves positioned on oven door and at rear of oven below heating elements.  
Outlet – Connection to Mercury Collection & Pollution Control Systems is positioned on top of oven (2 ports on each oven).
- *Cooling:* Liquid Nitrogen – injection ports on either side of oven, dispersed inside oven by perforated tubes. Used during final cooling stage only (< 400°F).

Process times and temperatures vary depending on the characteristics of the mercury-bearing materials. A typical operating cycle, including oven temperature ramping, process time, and oven cooling, takes approximately twenty-four to thirty-six (24-36) hours at a maximum operating temperature of 1000°F.

## Continuous Flow Retort Oven

The continuous flow design for retort recovery of mercury is most effective on "pourable" solids; including powders, granular solids, crushed glass, and soils of certain characteristics. The limitation to pourable solids for continuous flow processing directly relates to the functional design of the oven. Materials are loaded into a feed hopper with a design capacity of approximately twelve (12) 55-gallon drum equivalents. The materials are volumetrically fed into the unit. The oven is heated to approximately 1000 °F while materials continuously pass through. As the solids gradually travel the length of the oven, they are agitated and spread out, thereby increasing surface area available for heat transfer. Since the materials heat more quickly, the liberation of mercury vapor is also more rapid, leaving only trace quantities of mercury in the materials upon exiting the oven. In this fashion, one 55-gallon drum equivalent can be processed in approximately 45 minutes. Once processed, the residuals are transferred to containers for analysis and proper disposal.

The mercury collection and pollution control system for the Continuous Flow Retort Oven is functionally identical to those utilized by the Stationary Retort Ovens. See the following sections; Stationary Retort Ovens and Mercury Collection & Pollution Control Systems.

## Mercury Collection & Pollution Control System (Collection System)

Once mercury is removed from the materials in vapor form within the Stationary Retort Oven, the Collection System performs two primary functions: 1) condensation of mercury vapor into metallic (liquid) mercury, and 2) reduction of process mercury emissions. These results are obtained through a multi-phase approach.

Phases One through Three comprise the Mercury Collection System, and are a series of condensation vessels designed to gradually cool the air stream from the oven to below the boiling points of both mercury and water. Each vessel is a double-walled tank allowing the condensation and phase separation of vaporized mercury and water. These vessels are cooled by a non-contact ethylene glycol/water mixture surrounding the shell of the vessel. Air temperature through the condensation vessels drops from above the boiling point of mercury (~750°F) upon entering the system to at or below room temperature (50 to 70°F) upon leaving the system. At these temperatures, both mercury vapor and moisture content of the air stream are significantly reduced.

Phases Four through Six comprise the Pollution Control System. Immediately following the Mercury Collection System, airflow passes through Phase Four, a canister filter designed for the removal of particulate matter from the air stream. While the primary function of the filter is particulate removal, the filtration media also effectively captures mercury vapor, thereby providing additional pollution control.

The Phase Four particulate filter is followed by Phase Five, a 350-pound sulfur-impregnated carbon filter. As the naturally occurring form of mercury is mercuric sulfide (*HgS* or *cinnabar*), and is a fine-grained insoluble solid compound that does not liberate mercury vapors, the formation of sulfides and/or sulfates is common and effective practice for the removal of mercury from both air and water.

Phase Six, the final pollution control device prior to emission to the atmosphere, is a wet scrubber. The wet scrubber utilizes a mist of water to absorb or “scrub” from the air stream any fugitive mercury vapor and/or particulate matter that may have passed through the Collection System.

## Control Computer

Primary control and monitoring of the operating parameters for the Continuous Flow Oven, Stationary Retort Ovens, and the Mercury Collection & Pollution Control System are maintained on the Control Computer. Sensors throughout the retort processes (including Collection Systems) continuously monitor essential operating parameters such as air temperature, vacuum pressure, glycol/water coolant temperature, heating element output, and process time.



## Lamp Separation

Fluorescent light tubes (lamps) utilize mercury in their functional design. Fluorescent lamps may take a variety of shapes and sizes, but the general principle behind their function is the same. As an electric current is conducted into the lamp through the aluminum end caps, it is carried across the length of the lamp by mercury vapor. Calcium phosphate powder, a very fine white powder, illuminates as the electric current passes through it. The result is the soft steady light typical of fluorescent lamps. As the lamp approaches the end of its useful life, the chemical association of the mercury vapor to the calcium phosphate powder increases. Once the quantity of mercury vapor available to carry the electric current through the lamp is significantly diminished, the lamp “burns out” and is no longer usable.

The MWSI Lamp Separation Process is designed to physically separate the mercury contaminated calcium phosphate powder from the glass and end caps. Whole or partially broken lamps (not crushed, these materials are processed in either the Continuous Flow Retort or the Stationary Retorts) are removed from their shipping containers and placed onto a flat conveyor belt. The conveyor feeds the lamps into a crusher, which breaks the lamps into pieces less than approximately 1.5” in diameter. The crushed lamps, including end caps, are then transferred to a rotating trommel via a scoop conveyor. The trommel is under constant negative pressure and consists of a series of concentric screens of decreasing screen size. Particulates and dusts, including the calcium phosphate powder, are pulled through the screens and into a baghouse. The remaining larger pieces of glass then travel the length of the trommel, drop off onto a conveyor belt and are carried into a container for analysis and proper disposal. The aluminum end caps are also separated and accumulated in another container. Once collected in the baghouse, the powder falls into an accumulation container where it remains awaiting thermal processing (see Continuous Retort).

Mercury emissions from the Lamp Separation Process under standard operating procedures are minimal. The process is a dry, physical separation, with no heat introduced and no alteration of the form of mercury. The mercury present is primarily associated with the calcium phosphate powder and dust generated by the crushing process. The process is fully enclosed with air continuously drawn into the equipment, into a baghouse and ultimately through an activated carbon filter (~300 pounds of carbon) before final emission to the atmosphere. In addition the process controls, the ambient air in the Lamp Separation Area is continuously circulated through a mercury vapor filtration unit.

## MWSI Facility Inventory Management

Following inspection and acceptance, and prior to relocation to the appropriate handling area, each container is entered into a computerized inventory system. The system tracks the following information:

- Container Identification – A distinct six-digit identification number is assigned to each container in inventory. The number includes a two-digit prefix indicating the current year (i.e., 99####) with the remaining four digits indicating the year-to-date count (i.e., first container received in 1999 given the number 990001). For MWSI-generated wastes, the prefix also includes the letter 'W' (i.e., first container generated on-site in 1999 is given the number 99W0001).
- Material Description – MWSI assigns internal three-digit material categories for processing and storage. The specific material category for each container is indicated in this field.
- Generator Information – This field contains the company or individual generator name.
- Shipping Information – These fields provide the manifest or bill of lading identification number, the specific line item (if applicable), and the date accepted at the facility.
- Additional Description – Any additional detailed information or instructions are included in this text field.
- Transfer History – This field is used for tracking the sorting, accumulation, and/or partial processing of container contents (i.e., record quantities and destination containers of contents).
- Process History – These fields record the box number, run number, and date of processing.
- Off-site Shipment – These fields record the date and destination of off-site shipments to alternate treatment, disposal, recycling, and/or storage facilities.
- Lamp Categories – These fields are used for processing and billing purposes (identification and quantification of various types of fluorescent lamps).

An inventory tracking tag clearly presenting the above information is securely affixed to each container. The computerized inventory is used for issuing processing work orders, maintaining storage capacity compliance, preparing off-site shipments, and preparing productivity reports.

## Sample MWSI Inventory Tag

Drum #: 990001      Material Code: 014  
☐  
Material Category: Mercury Contaminated Debris  
☐  
Manifest #: WIR0000000      Line Item: 11A  
☐  
Size: 55 DM      Weight: 600 P  
☐  
Revenue Producing (Y/N): Y  
Date In: 1/1/99  
Generator: MWSI Customer, Inc.  
Profile #: 001-014      Universal (Y/N): N  
Description: Spill clean-up materials and PPE  
  
Trans. Date:      Into Drum #:  
Proc. Date: 1/3/99      Retort Run #: 3-65  
Ship Date:  
Destination Facility:  
  
4':      8':      Shields:  
HIDs:      Us/Circ/Comp:  
Misc:



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor  
George E. Meyer, Secretary

Box 7921  
101 South Webster Street  
Madison, Wisconsin 53707-7921  
TELEPHONE 608-266-2621  
FAX 608-267-3579  
TDD 608-267-6897

MERCURY WASTE SOLUTIONS INC  
Attn: Steven Rush  
21211 Durand Ave  
Union Grove WI 53182

Dear Notifier:

Below you will find the United States Environmental Protection Agency (U.S. EPA) Identification (ID) number that has been assigned to your installation.

**WIR000000356**

*MERCURY WASTE SOLUTIONS INC  
21211 DURAND AVE  
UNION GROVE*

This ID number must be included on all shipping manifest(s) for transporting hazardous wastes and on all correspondence and reports.

Please note the U.S. EPA number is site specific. If your installation changes locations, a new notification is required to obtain a new ID number. If your installation has changed ownership, a subsequent notification must be filed to allow the new owner to use the ID number.

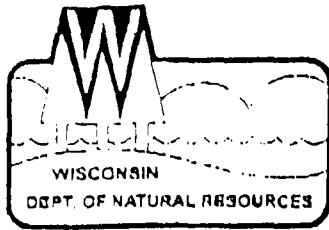
If you have any questions regarding hazardous waste activity, please contact the WDNR office in your district (See enclosure). If you have questions regarding the EPA ID's for your sites, please call me at (608) 264-6022.

Sincerely,

Dave Kollasch  
Notification Coordinator

enclosure

NIS.  
ATTA



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor  
George E. Meyer, Secretary  
Gloria L. McCutcheon, Regional Director

Southeast Region  
Milwaukee Service Center  
2300 N. Dr. ML King Drive, PO Box 12438  
Milwaukee, Wisconsin 53212-0438  
Telephone 414-263-8500  
FAX 414-263-8716  
TDD 414-263-8713

August 31, 2000

IN REPLY REFER TO FID# 252195350  
HW/LIC

Donald Wodek, Executive Vice President  
Mercury Waste Solutions, Inc.  
2007 West County Road C-2  
Roseville, MN 55113-1211

RE: Mercury Waste Solutions, Inc. - Operating License for Hazardous Waste Management  
Tank Storage and Treatment, and Additional Container Storage and Renewal Application  
21211 Durand Avenue, Union Grove, WI  
EPA ID# WIR000000356

Dear Mr. Wodek:

On July 6, 2000, MWSI was issued the 2000 (July 6, 2000 - September 30, 2000) hazardous waste operating licenses for container storage and tank storage. Since that time, additional container storage and tank storage and treatment have been constructed and approved. This letter verifies that the original operating licenses issued on July 6, 2000, now officially includes the additional container storage and the tank storage and treatment.

When issued on July 6, 2000, the container storage license was 560 fifty-five gallon containers of hazardous waste (a total of 30,800 gallons) in the *Proposed Drum Storage Area*, and 136 55-gallon drum equivalents (a total of 7,480 gallons) in the *Oven Batch Storage Area*. This accounted for total container storage of 38,280 gallons. With this letter the container storage license now also includes the additional container storage in the *Roll-Off Container Storage Area*, which allows for storage of one cubic yard roll-off, or 20 cubic yard boxes (a total of 6,600 gallons). The existing container storage of 38,280 gallons plus the additional container storage of 6,600 gallons equals a total container storage capacity of 44,880 gallons.

The tank treatment and storage unit consists of two 500-gallon treatment tanks (*Process Tank #1* and *#2*) and one 3,000-gallon storage tank (*Storage Tank #2*). The tank storage license was issued prematurely by the Department on July 6, 2000. Since MWSI has now completed the construction of the tank storage and treatment area and the Department has approved the construction, the tank storage license is now officially operative. The tank storage license does include the treatment tanks. The operating license will be revised to state tank treatment in addition to tank storage, when the renewal license is issued for 2001 (October 1, 2000 - September 30, 2001).

The renewal license will also correct the location of the facility and change it to 21211 Durand Avenue, Union Grove. If any other information on the licenses is incorrect, or any changes are needed such as changes in the authorized contact name and address, please notify Patrick Brady at (414) 263-8594.


The license is effective until September 30, 2000, and must be renewed prior to that date. An application for renewal was originally sent out on July 11, 2000. Attached to this letter is another renewal application. In order for MWSI to have an operating license in place beyond the September 30, 2000, expiration date, MWSI must submit the renewal application and annual fee as soon as possible.

You may continue to apply for renewal of this license annually, for a period of ten (10) years from the date your initial operating license was issued. If you plan to continue to operate this facility following the end of that ten year period, you are required to submit all reports and plans necessary for reissuance of the initial operating license one year prior to the 10 year anniversary date.

Hazardous waste licenses are issued under the provisions of Chapters NR 600-685, Wis. Adm. Code. Issuance of these licenses is based on compliance with these administrative rules, the feasibility and plan of operation report determination granted your facility, and compliance with any subsequent plan modifications issued by the Department.

If you have any questions or other comments regarding your license contact Patrick Brady at (414) 263-8594.

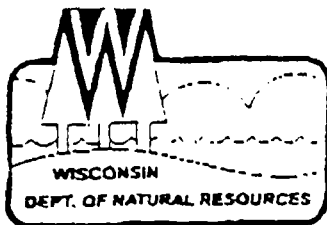
Sincerely,



Patrick Brady  
Waste Management Engineer  
Southeast Region

c: US EPA Region 5  
SER Casefile (P. Brady)  
Bureau - WA/3 (K. Kessler, D. Kollash)  
Scott Taylor - MWSI

Post-It® Fax Note		7671	Date	9-1-00	# of pages	2
To	Scott Taylor		From	DAT BRADY		
Co/Dept	MWSI		Co.	WDNR		
Phone #	800 741 343		Phone #	414 263 8594		
Fax #	262 878 2699		Fax #			



State of Wisconsin | DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor  
George E. Meyer, Secretary  
Gloria L. McCutcheon, Regional Director

Southeast Region  
Milwaukee Service Center  
2300 N. Dr. ML King Drive, PO Box 12438  
Milwaukee, Wisconsin 53212-0438  
Telephone 414-263-8500  
FAX 414-263-8716  
TDD 414-263-8713

July 24, 1998

File Ref: FID#252202060

HW/LIC

Donald J. Wodek, Executive Vice President  
Mercury Waste Solutions, Inc.  
2007 West County Road C2  
Roseville, MN 55113-1211

RE: Mercury Waste Solutions, Inc., (MWSI), 21211 Durand Avenue, Union Grove, WI  
Authorization to Accept and Process K071 and P092 Wastes, EPA ID# WIR000000356

Dear Mr. Wodek:

The department has received your December 15, 1997, variance application for storing universal/special waste at your universal/special waste destination facility. Along with that submittal was a closure bond which covered the disposal of 80,000 lamps which MWSI had proposed to store at the facility. As of this point in time, MWSI has complied with what the department has requested of them.

The department is still evaluating alternatives to the requirement for a hazardous waste storage license for storing universal waste at a universal waste destination facilities. As an alternative policy is approved, the department will keep MWSI informed of what actions the department will require of MWSI.

In regard to increasing the amount of bulb storage, as long as the bulbs can be stored in a safe manner and the closure bond is adjusted and approved, MWSI can increase the bulb storage capacity. As with other financial issues, MWSI should submit a signed original of the closure bond to the department's Madison bureau for approval.

If you have any questions, feel free to give me a call at 414/263-8594.

Sincerely,

Patrick J. Brady  
Waste Management Engineer  
Southeast Region

c. SER Casefile (P. Brady, T. Kennedy)  
Bureau - WA/3

Quality Natural Resources Management  
Through Excellent Customer Service





**UNITED STATES  
DEPARTMENT OF  
AGRICULTURE**

**Animal and Plant  
Health Inspection  
Service**

**Plant Protection and  
Quarantine**

# Soil Permit

Permit  
Number: S-36882

Mercury Waste Solutions, Inc.  
(James R. Cornwell)  
21211 Durand Avenue  
Union Grove, Wisconsin 53182

## Issued To:

TELEPHONE: (414) 878-2599

Under the authority of the Federal Plant Pest Act of May 23, 1957, permission is hereby granted to the facility/individual named above subject to the following conditions:

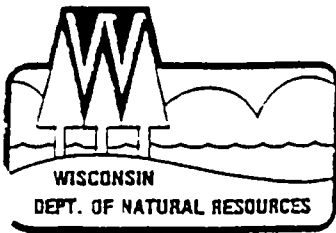
1. Valid for shipments of soil not heat treated at the port of entry, only if a compliance agreement (PPQ Form 519) has been completed and signed.
2. To be shipped in sturdy, leakproof, containers.
3. To be released without treatment at the port of entry.
4. To be used only for analysis and only in the facility of the permittee at Mercury Waste Solutions, Inc., located in Union Grove, Wisconsin.
5. No use of soil for growing purposes is authorized, including the isolation or culture of organisms imported in soil.
6. All unconsumed soil, containers, and effluent is to be autoclaved, incinerated, or heat treated by the permittee at the conclusion of the project as approved and prescribed by Plant Protection and Quarantine.
7. This permit authorizes shipments from all foreign sources, including Guam, Hawaii, Puerto Rico, and the U.S. Virgin Islands through any U.S. port of entry.

MARCH 31, 2003

Expiration Date

Approving Official DEBORAH M. KNOTT





## State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor  
George E. Meyer, Secretary  
Gloria L. McCutcheon, Regional Director

Southeast Region Annex  
4041 N. Richards Street, Box 12436  
Milwaukee, WI 53212-0436  
TELEPHONE 414-229-0800  
FAX 414-229-0810

November 26, 1997

File Ref: FID#252202060  
HW/cmel

Donald J. Wodek, Executive Vice President  
Mercury Waste Solutions, Inc.  
2007 West County Road C-2  
Roseville, Minnesota 55113-1211

Steve Rush,  
Mercury Waste Solutions, Inc.  
21211 Durand Avenue  
Union Grove, WI 53182

Re: Mercury Waste Solutions, Inc. EPA ID.# - WIR000000356  
Hazardous Waste Management Compliance Evaluation Inspection

Dear Mr. Wodek and Mr. Rush:

A hazardous waste management compliance evaluation inspection was conducted at the Mercury Waste Solutions, Inc. (MWSI) facility on October 17, 1997, and November 6, 1997. At the time of the completion of the inspection on November 6, 1997, the department found MWSI to be in substantial compliance with the hazardous waste small quantity generator and legitimate recovery and reclamation recycling requirements of chs. NR 600 through 685, Wis. Adm. Code.

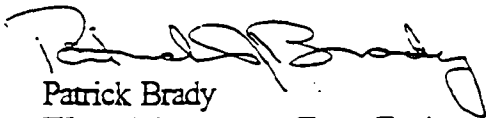
However, the department observed the following areas of concern:

1. In the batch retort furnace, the department noticed that water was still on the floor. The water is condensation formed when the furnace is chilled down. Mr. Rush explained that MWSI had ordered collection pans for the furnace to collect the condensation. MWSI should inform the department when the collection pans are operational.
2. On previous visits to the site, but not as much this visit, department staff have expressed concern regarding security at the site. This problem has been exacerbated by the construction work at the facility. To resolve this, MWSI has taken action to keep doors closed, informed construction workers of safety concerns, and placed warning signs outside of entrances. Mr. Rush stated that MWSI is committed to building a fence around the property when the outside construction of the new building is completed. MWSI shall inform the department when the outside construction of the new building is completed and the fence is built. MWSI must remain vigilante to keep the site secure especially while construction activities continue at the facility.
3. MWSI must continue to follow the operation parameters outlined in the 10-31-97 letter to Don Wodek and Steve Rush regarding acceptance and storage of waste at the facility. The department will continue working on the MWSI variance for storage and storage license.


The department will be conducting another inspection of MWSI in the near future to confirm that MWSI has addressed the areas of concern and continues to be in substantial compliance with the hazardous waste small quantity generator and legitimate recovery and reclamation recycling requirements of chs. NR 600 through 685, Wis. Adm. Code.

If you have any questions, please feel free to give me a call at (414) 229-0858.

Sincerely,

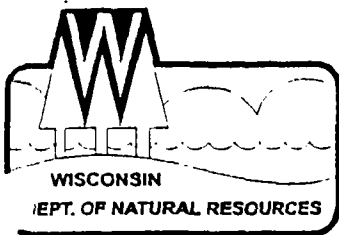


Patrick Brady  
Waste Management Team Engineer  
Southeast Region



Tim Kennedy  
Waste Management Team Investigator  
Southeast Region

c: Bureau - WA/3 (T. Mulholland)  
SER Casefile (F. Schultz, S. Miller, P. Brady, T. Kennedy)  
L. Sridharan  
S. Henneger - CF/8  
R. Case - WT/2  
L. Polczynski - NER  
G. Hooper - WCR  
L. Hanefeld - SCR



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor  
George E. Meyer, Secretary  
Gloria L. McCutcheon, Regional Director

Southeast Region Annex  
4041 North Richards Street  
PO Box 12436  
Milwaukee, Wisconsin 53212-0436  
Telephone 414-229-0800  
FAX 414-229-0810

March 4, 1999

Mr. Donald J. Wodek, Executive Vice President  
Mercury Waste Solutions, Inc.  
2007 West County Road C-2  
Roseville, MN 55113-1211

Subject: Proposed PCB Ballast Storage and Processing  
Mercury Waste Solutions, Inc.,  
21211 Durand Avenue, Union Grove, WI 53182  
EPA I.D. # - WIR000000356

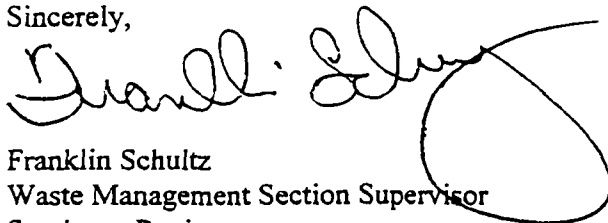
Dear Mr. Wodek:

The Department has received and reviewed your request for an exemption under s. 289.53, Wisconsin Statutes, from the commercial PCB storage and treatment facility, feasibility, licensing, and financial responsibility requirements. The requested exemption is to allow you to store and dismantle PCB and non-PCB ballasts.

In reviewing your exemption request and inspecting the facility, we have determined that your proposal should provide an acceptable facility if operated in accordance with ch. NR 157, Wisconsin Administrative Code, your July 23, 1998 plan, subsequent submittals and the conditions of the following approval. If you expand or modify your business in other areas which involve the storage and processing of PCBs, then a license under s. 289.53, Wisconsin Statutes, may be required.

Your request for exemption from s. 289.53, Wisconsin Statutes, is hereby granted subject to the attached special conditions. If any problems or questions arise feel free to contact Tim Kennedy of my staff at (414) 229-0858.

Sincerely,



Franklin Schultz  
Waste Management Section Supervisor  
Southeast Region

c. SER WA Casefile (P. Brady, T. Kennedy, M. Ellenbecker)  
WA/3 - Madison



Quality Natural Resources Management  
Through Excellent Customer Service



**BEFORE THE STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES**

**CONDITIONAL EXEMPTION APPROVAL  
FOR THE MERCURY WASTE SOLUTIONS, INC.  
PCB STORAGE and PROCESSING FACILITY**

**FINDINGS OF FACT**

The Department finds that:

1. Mercury Waste Solutions, Inc. (MWS) has proposed to modify its current PCB storage facility at 21211 Durand Avenue, Union Grove, Racine County, Wisconsin.
2. On July 23, 1998, MWS submitted a request for a license exemption under s. 289.53, Wisconsin Statutes, to store and dismantle drums of PCB and non-PCB ballasts. The request describes how MWS will accept PCB and non-PCB ballasts that will be separated into components then shipped off-site for proper disposal or salvage.
3. On August 3, 1998, MWS submitted additional information about the proposed PCB ballast processing operation.
4. On October 2, 1998, the Department performed a site visit to inspect the location of the proposed PCB storage and processing and to witness the floors being sealed.
5. On January 22, 1999, the Department performed a site visit to inspect the completed PCB storage and processing building.
6. On January 25, 1999, MWS faxed the Department information about the MWS PCB ballast handling protocol (#OPS - 001C).
7. On February 22, 1999, MWS faxed the Department a specific request for exemption under s. 289.53, Wisconsin Statutes, and more information regarding PCB ballast handling procedures and documentation of employee training.
8. The conditions of approval set forth below are needed to ensure that the processing facility will meet the requirements of s. 299.45 , Wisconsin Statutes, and ch. NR 157, Wisconsin Administrative Code.

**CONCLUSIONS OF LAW**

1. The Department has promulgated ch. NR 157, Wisconsin Administrative Code, establishing minimum standards for management of PCBs and products containing PCBs under the authority of s. 299.45, Wisconsin Statutes.
2. The Department has authority to issue approvals with special conditions in accordance with s. 289.53, Wisconsin Statutes.

3. Under s. 289.53, Wisconsin Statutes, the Department has authority to grant exemptions from the provisions of s. 289.53, Wisconsin Statutes.
4. In accordance with the foregoing, the Department has authority under s. 289.53, Wisconsin Statutes, and ch. NR 157, Wisconsin Administrative Code, to issue the following conditional approval.

#### **CONDITIONAL PLAN APPROVAL AND GRANT OF EXEMPTION**

The Department hereby grants an exemption from the requirements of s. 289.53, Wisconsin Statutes, to MWS for storing and dismantling PCB and non-PCB ballasts at the MWS facility in Union Grove, Wisconsin, and approves their plan dated July 23, 1998, subject to compliance with the provisions of ch. NR 157, Wisconsin Administrative Code, and the following conditions:

1. MWS shall follow the PCB ballast management guidelines presented in their July 23, 1998 plan and August 3, 1998; January 25, 1999; and February 22, 1999 plan additions.
2. The area used for storing the PCB ballasts shall have secondary containment that is in good condition.
3. MWS shall maintain adequate aisle space in the storage area so the containers and pallets can be inspected.
4. MWS shall perform daily inspections and keep daily inspection records of containers, processing areas, and emergency response equipment.
5. MWS shall store the PCB containers indoors on a paved and sealed surface.
6. Repackaging of containers shall be done inside the PCB storage/processing building.
7. MWS shall maintain operating records for the PCB containers stored and processed on site.
8. The storage capacity for PCB's shall be limited to 228 55 gallon drum equivalents.
9. All PCB shipments must be accompanied by a tracking form.
10. MWS shall document the fire department has been notified of PCB storage and processing occurring on site.
11. Storage capacity in the freezer shall be limited to 40 55 drum equivalents.
12. Ballasts found to be leaking shall be placed in a container with absorbent material.
13. Ballast and potting material accumulation drums must immediately be moved from the processing area to storage when full.

14. MWS must perform annual environmental monitoring of soil surrounding the PCB ballasts processing building.
15. Drums in the ballast dismantling area are limited to drums actively being emptied or filled.
16. MWS shall notify the Department before implementing any revisions or changes to their PCB storage and processing operation.
17. This PCB ballast storage and processing exemption replaces the PCB ballast storage exemption issued to MWS by the Department on February 25, 1998.

The Department retains the jurisdiction either to require the submittal of additional information or to modify this approval at any time, if in the Department's opinion further modifications are necessary. Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions or approval for this facility.

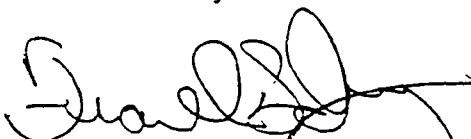
#### NOTIFICATION OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Statutes, you have 30 days after the decision is mailed or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

This notice is provided pursuant to s. 227.48(2), Statutes.

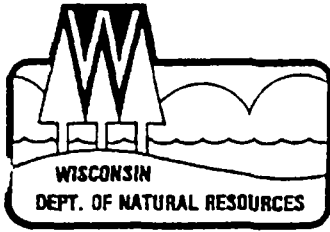
DEPARTMENT OF NATURAL RESOURCES  
For the Secretary

  
\_\_\_\_\_  
Frank Schultz  
Waste Management Section Supervisor  
Southeast Region

March 5, 1998  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Tim Kennedy  
Waste Management Specialist

3/4/99  
\_\_\_\_\_  
Date



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor  
George E. Meyer, Secretary  
Gloria L. McCutcheon, District Director

Southeast District Annex  
4041 N. Richards Street, Box 12436  
Milwaukee, WI 53212-0436  
TELEPHONE 414-229-0800  
FAX 414-229-0810

June 27, 1996

In Response Refer To: FID#252202060  
HW/NOTIF/umwsrsp.696

Mr. James R. Cornwell, National Sales Manager, &  
Mr. Steve Rush, Facilities Manager  
Mercury Waste Solutions, Inc.  
21211 Durand Avenue  
Union Grove, WI 53182

Subject: Legitimate Recovery and Reclamation Recycling Exemption  
Mercury Waste Solutions, Inc., EPA I.D.# - WIR000000356

Dear Mr. Cornwell & Mr. Rush:

The department acknowledges that Mercury Waste Solutions, Inc. (formerly known as U.S. Technology, Inc.) has authority to operate their continuous feed mercury retort furnace and their batch mercury retort furnace operations under the exemption provided under the hazardous waste management legitimate recovery and reclamation recycling exemption, s. NR 625.06, Wisconsin Administrative Code.

The department has received and reviewed the April 8, 1996 letter from B. A. Liesch Associates to U.S. Technology regarding potential air emissions; the April 19, 1996, submittal to the department which included information on the batch mercury retort furnace; the April 26, 1996, submittal to the department which included information on the air pollution scrubber; and the May 31, 1996, submittal to the department which included a renotification for a BIF exemption, and an updated waste analysis plan. All of these documents were submitted in response to the department's April 4, 1996, letter.

Based upon review of the above submittals, the department now feels that Mercury Waste Solutions, Inc. should be able to operate their mercury retort operations with the mercury-contaminated hazardous waste that they have proposed in compliance under the hazardous waste management legitimate recovery and reclamation recycling exemption, s. NR 625.06, Wisconsin Administrative Code, as long as they continue to follow the plans outlined in their April 26, 1995, July 6, 1995, December 29, 1995, April 19, 1996, April 26, 1996, and May 31, 1996 submittals. The mercury-contaminated waste streams that Mercury Waste Solutions, Inc. has proposed recycling are: metal switches, glass switches, mercury relays, thermocouples, ignatron tubes, mercury batteries, dental amalgams, telephone switches, thermometers, manometers, mercuric oxide, cleanup kits for mercury-only spills, lighting and lighting waste. Additionally, the following mercury contaminated waste streams (soils; PC boards; rectifiers; and activated charcoal) can be recycled only when mercury has been shown to be the only contaminant present.

The department's hazardous waste management section also acknowledges that the department's air management section has determined that operation of the retort furnaces does not require an air permit.

In regards to storage of the mercury-contaminated waste streams on-site, the department is still working on implementation of the guidance document to incorporate the federal universal waste rule requirements into Wisconsin's special waste rule. This issue affects your storage of these wastes but will probably not affect your recycling of these wastes. The department will keep you updated on any decisions.

Be aware that the department will be reinspecting your facility to insure that Mercury Waste Solutions, Inc. is following the procedures that have been laid out in their submittals and to check for compliance with the applicable hazardous waste management regulations.

If you have any questions or comments feel free to give me a call at (414) 229-0845. Your continued cooperation is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Brady". The signature is fluid and cursive, with the first name "Patrick" and last name "Brady" clearly distinguishable.

Patrick Brady  
Waste Management Engineer

- c. SED Casefile (W. Ebersohl, T. Kennedy, P. Brady)  
Bureau - SW/3 - HWMS (E. Lynch, T. Mulholland)





## **Mercury Waste Solutions, Inc.**

21211 Dimond Avenue, Union Grove, Wisconsin 53182-9711

Phone: 414-878-2599

Fax: 414-878-2699

[www.mercurywaste.com](http://www.mercurywaste.com)

## **Regulatory Contact Information**

For public information requests, please contact the individuals listed below.

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### **Wisconsin Department of Natural Resources**

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#### **Southeast District**

4041 North Richards St.  
Milwaukee, WI 53212

**Mr. Tim Kennedy**  
*Hazardous Waste Investigator*

Phone: (414) 229-0858  
Fax: (414) 229-0810

**Mr. Patrick Brady**  
*Engineer – Hazardous Waste Program*

Phone: (414) 263-8594  
Fax: (414) 263-8716

#### **State Headquarters**

101 South Webster St.  
Madison, WI 53707

**Mr. Timothy Mulholland**  
*Waste Management Engineer*  
*Hazardous Waste Management Section*

Phone: (608) 266-0061

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# MERCURY WASTE SOLUTIONS

## ACCEPTANCE GUIDELINES

This information is being provided to assist you in determining which mercury-bearing materials are acceptable for processing and mercury recovery by Mercury Waste Solutions, Inc. (MWSI). Materials and compounds accepted for processing may be subject to regulations as hazardous wastes. Other non-mercury materials are also accepted for recycling.

I. Mercury Waste Solutions is permitted to accept the following materials:

A. Acceptable Mercury Wastes and Codes

**D001 as an oxidizer, D002, D004-D011, U151, K071, K106 & P092**  
**Universal Waste batteries, lamps and thermostats**

B. Other Acceptable Materials

**Lighting Ballasts** (PCB and non-PCB)  
**Batteries** (alkaline, lithium, and nickel cadmium)  
**Obsolete Computer Equipment**

II. Mercury Waste Solutions is **NOT** permitted to accept the following materials:

- **Any F, K, P or U-listed wastes** (other than U151, K106 and P092)
- **Radioactive materials**
- **Reactive materials (D003)** (lithium batteries are accepted under Universal Waste Rule)
- **Regulated medical wastes**
- **Dioxins**
- **Pesticides and herbicides**

If you need assistance, please contact:

**Mercury Waste Solutions Customer Service Department (800)741-3343.**

# MERCURY WASTE SOLUTIONS

## ACCEPTABLE MATERIALS

### ACTIVATED CARBON/CHARCOAL BATTERIES

**Alkaline** (with/without mercury - Universal Waste)  
**A to N Batteries** (Coast Guard, gel cell batteries)  
**Lithium** (Universal Waste)  
**Mercuric Oxide** (Universal Waste)  
**Nickel Cadmium** (Universal Waste)  
**Zinc Air** (with/ without mercury - Universal Waste)  
**Zinc Carbon** (with/without mercury - Universal Waste)

### CLEANUP KITS FOR MERCURY SPILLS

### COD TEST SOLUTIONS

### DEBRIS CONTAMINATED WITH MERCURY

### DENTAL AMALGAM

### DEVICES CONTAINING MERCURY

### FLUORESCENT LAMPS (whole, broken, crushed)

### GASTROINTESTINAL TUBES/DILATORS

### GLASS SWITCHES

### GLASS CONTAMINATED WITH MERCURY

### IGNITRON TUBES

### LIGHTING/LIGHTING WASTES

### MANOMETERS CONTAINING MERCURY

### MERCURIC OXIDE POWDER/PELLETS

### MERCURIC OXIDE FLOOR SWEEPINGS

### MERCURIC OXIDE BATTERIES

### MERCURY COMPOUNDS

### MERCURY CONTAMINATED MATERIALS

### MERCURY CONTAMINATED METALS

### MERCURY CONTAMINATED SOIL (dirt, gravel, leaves)

### MERCURY SOLUTIONS

### MERCURY RELAYS

### METALLIC MERCURY (pure/impure)

### METAL SWITCHES

### PC BOARDS

### PHOSPHOR POWDERS

### PRESSURE REGULATORS (containing Mercury)

### RECTIFIERS

### SILVER AMALGAM

### SILVER OXIDE FLOOR SWEEPINGS

### SILVER DUST

### SODIUM AMALGAM

### SOILS CONTAMINATED WITH MERCURY

### SWITCHES (containing Mercury)

### TELEPHONE SWITCHES

### THERMOCOUPLES

### THERMOMETERS (containing Mercury)

### THERMOSTATS (containing Mercury)

### VAPOR LAMPS (containing Mercury)

### ZINC AMALGAM

For Information regarding possible restrictions for acceptance of any materials on this list contact:

Mercury Waste Solutions Customer Service Department (800)741-3343

# MERCURY COMPOUNDS AND SOLUTIONS

## MERCURY COMPOUNDS

4-aminophenylmercuric acetate  
 chloranilic acid (mercury II)  
 dibenzyl mercury  
 ethyl mercuric acetate  
 ethyl mercuric phosphate  
 ethyl mercury (p-toluene sulfoanilide)  
 fluorescein mercuric acetate  
 Harris alum hematoxylin  
 mercuric acetate (bisacetoxy mercury,  
     diacetoxymercury, mercury diacetate,  
     mercury II acetate)  
 mercuric benzene sulfonic acid  
 mercuric benzoate (mercury II benzoate)  
 mercuric bromate  
 mercuric bromide (mercury II bromide)  
 mercuric carbonate  
 mercuric chlorate  
 mercuric chloride (corrosive sublimate,  
     bichloride of mercury, mercury perchloride)  
 mercuric cyclohexane butyrate  
 mercuric dinaphthylmethane disulphonate  
 mercuric fluorate  
 mercuric iodate  
 mercuric iodide  
 mercuric isocyanate  
 mercuric lactate (mercury II lactate)  
 mercuric nitrate (mercury II nitrate,  
     mercury permittate)  
 mercuric oleate (mercury oleate)  
 mercuric oxide (red oxide of mercury, yellow  
     oxide of mercury, mercury II oxide)  
 mercuric oxybromide  
 mercuric oxychloride  
 mercuric oxyfluoride  
 mercuric oxyiodide  
 mercuric phenyl mercaptide  
 mercuric potassium iodide  
 mercuric salicylate  
 mercuric succinimide  
 mercuric sulfate (mercury II, sulfate, mercury  
     persulfate, mercury bisulfate)  
 mercuric sulfide  
 mercuric thiocyanate  
 mercuriol (mercury nucleate)  
 mercuriophen  
 mercuriophylline (mercupurin, mercuzanthin)  
 mercurous acetate (mercury monoacetate,

mercury acetate)  
 mercurous bromide (mercury I bromide)  
 mercurous carbonate  
  
 mercurous chloride (calomel, mercury I  
     chloride, mercury monochloride)  
 mercurous fluoride  
 mercurous iodide  
 mercurous gluconate (mercury I gluconate)  
 mercurous nitrate (mercury I nitrate)  
 mercurous nitrate  
 mercurous oxide (mercury I oxide)  
 mercurous sulfate (mercury I sulfate)  
 mercury phosphate  
 mercury monohydrate  
 mercury sulfide  
 mercury tetravanadate  
 mercury thiocyanate  
 mercury trifluoroacetate  
 merthiolate solution (thimersol, thiomersalate,  
     SET, elicide, merfamin, o-ethylmercurithio  
     benzoic acid, sodium salt)  
 methoxy ethyl mercuric acetate  
 N-phenylmercuriethylene diamine  
 p-(acetoxymercuric) aniline  
 p-hydroxy mercuricbenzoate  
 phenylmercuric acetate  
 phenylmercuric benzoate  
 phenylmercuric bromide  
 phenylmercuric chloride  
 phenylmercuric cyanide  
 phenylmercuric dimethylthiocarbamate  
 phenylmercuric dodecyl succinate  
 phenylmercuric hydroxide  
 phenylmercuric iodide  
 phenylmercuric nitrate  
 phenylmercuric oxalate  
 phenylmercuric oxide  
 phenylmercury phosphate  
 pyridyl mercuric acetate  
 sodium ethylmercurithiosalicylate

## MERCURY SOLUTIONS

acetates	Nessler's Reagent
bromides	nitrates
carbonates	nitric acid containing mercury
chlorides	nitrites
COD test solutions	oxalates

For information regarding possible restrictions for accepting mercury compounds or solutions contact:  
 Mercury Waste Solutions Customer Service Department (800)741-3343



## MERCURY WASTE SOLUTIONS, INC.

### ADDITIONAL MATERIALS ACCEPTANCE GUIDELINES

The following materials **are** accepted at the MWSI Union Grove facility.

However, these materials are either incompatible with the retort process or are intended for accumulation, sorting and /or disassembly prior to shipment off-site to an alternate properly permitted treatment, disposal, or recycling facility.

- Lithium Batteries (all types)
- Nickel Cadmium Batteries
- Lead Acid Batteries
- Magnesium Batteries
- Nickel Iron Batteries
- PCB Ballasts
- PCB Capacitors
- Ballasts containing DEHP
- Intact Computer Hardware

When preparing packages containing these materials for shipment to the MWSI Union Grove facility:

- Every attempt should be made to package and label these materials separately.
- Should segregation by the generator be impractical, the actual or potential presence of these materials must be clearly indicated on the materials characterization and shipping documentation.

The following materials **are not** accepted at the MWSI Union Grove facility.

The Wisconsin Department of Natural Resources (WI DNR) has granted the MWSI Union Grove facility a variance to accept/store mercury-bearing and related waste materials with the following limitations.

*The MWSI Union Grove facility may not accept:*

- Any EPA Characteristic Hazardous Waste (other than D001 as an oxidizer *only*, D002, D003 lithium batteries for brokerage *only*, and D004 through D011)
- Any U-, F-, K-, or P-Listed EPA Hazardous Waste (other than U151, K106, K071, and P092)
- Radioactive Materials (i.e., radioisotopes of mercury)
- Reactive Materials (i.e., cyanides in any form) with exception for D003 lithium batteries
- Regulated Medical or Biohazard Wastes
- Explosives, Flammables, or Auto-Ignitables (i.e., mercuric fulminate, mercuric perchlorate, etc.)
- Pesticides, Herbicides, or Fungicides
- Dioxins
- Compressed gasses
- Cylinders (other than DOT approved carbon-steel quicksilver flasks)





### **"Environmental Services for Industry"**

#### **Hazardous Waste Landfill Services**

Hazardous waste disposal is a vital concern for our customers. That is why environmentally safe and compliant methods of hazardous waste management are fundamental criteria for doing business at EQ. Our associates receive extensive training and annual refresher courses to ensure consistent and continuing quality in everything we do. That translates into the safest environment for the community and a consistent service standard for our customers.

Our customers are continuously faced with changing regulations and far-reaching liability considerations. The costs and consequences of poor waste management decisions can haunt your company for years. EQ takes your business very seriously.

#### **Site Specifications**

- 435 acre site
- No daily capacity limits

#### **Services**

- Waste analysis
- Transportation
- Chemical oxidation, stabilization and neutralization (on contiguous property)
- Subtitle C landfill disposal



#### **Features**

- Fully permitted and insured Part B Status
- TSCA permit (only licensed facility in the Midwest)
- Accepts over 630 different waste codes-both federal and the State of Michigan
- On-site laboratory analytical services
- Extensive leak detection and groundwater monitoring systems
- State-of-the-art double composite synthetic liners provide extra protection
- Automated, ultra-high pressure truck wash

**Operating Hours:** EQ offers flexible receiving hours. Our facilities have the ability to receive waste shipments at any time with advanced scheduling.

- Normal receipt hours: 7:00 AM TO 5:00 PM, Monday - Friday
- Extended receipt hours (including weekends): Prior scheduling required

For assistance on your next shipment, call **1-800-KWALITY (592-5489)**

[Home](#)

[Michigan Disposal Waste Treatment Plant](#)

*Wayne Disposal, Inc.*

[Michigan Recovery Systems, Inc.](#)

[EQ Approvals Valet](#)

[E-Mail](#)



Wayne Disposal, Inc.

EPA ID# MID048090633; Subtitle C Landfill

49350 North I-94 Service Drive, Belleville, Michigan 48111

Tel (734) 697-2200 Fax (734) 699-3499





## Resource Guide - Facility Information

### **EQ - The Environmental Quality Company**

EQ represents a group of related companies that provide services and solutions for safely managing hazardous and nonhazardous wastes. EQ's professionals are dedicated to operating modern waste management facilities in full compliance with all applicable federal and state regulations to protect the environment and the public. EQ utilizes advanced waste management technologies that enable industries and municipalities nationwide to properly dispose of the wastes produced as a byproduct of our modern lifestyle.

### **Michigan Disposal Waste Treatment Plant**

The Michigan Disposal Waste Treatment Plant is one of the largest treatment facilities in the United States. The plant treats industrial wastes and remedial action projects to meet land disposal requirements. Employing the Best Demonstrated Available Technology (BDAT), EQ's treatment services include stabilization and neutralization of hazardous and nonhazardous sludges, soils, slurries, liquids, powders, and dusts. Organic wastes are chemically oxidized prior to disposal, and pozzolanic stabilization is employed for metal-bearing wastes, rendering an insoluble, solid, material for safe landfill disposal.

### **Wayne Disposal, Inc. Site #2 Landfill**

Wayne Disposal, Inc. is a fully permitted Subtitle C landfill and can accept over 600 different waste codes that meet all land disposal restrictions. It is constructed using a state-of-the-art, double composite synthetic liner.

In April of 1997, Wayne was also permitted to accept TSCA solids.

### **Michigan Recovery Systems, Inc.**

Michigan Recovery Systems, Inc. (MRSI), is a specialist in the recycling and reclamation of industrial organic solvents for direct reuse. These materials include halogenated and nonhalogenated solvents, solvent blends, paint, adhesives, inks, gasoline and other petroleum by-products, high boiling solvents and chemicals, and spent aircraft deicing fluid. MRSI also manages various hydrocarbon waste streams by blending them into a fuel burned by cement kilns.

# AVAILABLE TREATMENT TECHNOLOGY STABILIZATION (STABL)/MICROENCAPSULATION (MICRO)/NEUTRALIZATION (NEUTR)

49350 N. I-94 Service Drive Belleville, MI 48111 Phone: (800) 592-5489 Fax: (800) 592-5329

## APPLICABLE WASTE TYPES

Wastes and hazardous debris containing leachable metals, high filterable solids content, low total organic content, and low oil and grease content. These include residuals from treatment of electroplating waste waters, characteristic and listed metal wastes. Typical hazardous waste numbers include D004-D011, D018-D043, F001-F005, F006-F009, F011, F012, F019, K061.

## PRE-TREATMENT REQUIREMENTS

May require reducing or oxidizing metal to lower solubility states.  
May require reducing oil and grease or organic content.

## CRITICAL DESIGN PARAMETERS

- Amount and type of stabilizing agent and additives
- Degree of mixing
- Residence time
- Temperature and humidity
- Form of metals
  - Oxidation state
  - Solubility

## WASTE CHARACTERISTICS AFFECTING PERFORMANCE

- **CONCENTRATION OF FINE PARTICLES**  
Very FINE particles (<No.200 mesh) may weaken chemical bonds and increase leachability.
- **CONCENTRATION OF OIL AND GREASE**  
High OIL AND grease content coat particles, weaken chemical bonding and increase leachability.
- **CONCENTRATION OF ORGANIC COMPOUNDS**  
High ORGANIC content (TOC) and organic compounds can inhibit curing and increase leachability.
- **CONCENTRATION OF SULFATE AND CHLORIDE COMPOUNDS**  
High sulfate and chloride content may interfere with chemical reactions, weaken bond strength, affect cure time, strength, and increase leachability.
- **SOLUBILITY OF METAL COMPOUNDS**  
Metals should be present in most insoluble form.

## UNDERLYING PRINCIPLE OF OPERATION

The basic principal of operation for stabilization is that leachable metals and low levels of selected organics are immobilized by the addition of stabilization reagents. The leachability is reduced by the formation of a lattice structure and/or chemical bonds that bind the contaminants into a solid matrix thereby limiting the material. Stabilization of metals is most effective when the metal is in its least soluble state. Typical stabilization reagents include Portland cement, lime and cement kiln dust. Micro-encapsulation involves stabilization of hazardous debris such that the leachability of hazardous contaminants are reduced.



## Resource Guide -

Page 1 of 1

**Wayne Disposal, Inc. Site #2 Landfill**  
**Permitted Waste Codes**

D001	D014	D027	D040	F001	F024	K001	K015	K028	K041	K062	K090	K105	K118	K147
D002	D015	D028	D041	F002	F025	K002	K016	K029	K042	K064	K091	K106	K123	K148
D003	D016	D029	D042	F003	F032	K003	K017	K030	K044	K065	K093	K107	K124	K149
D004	D017	D030	D043	F004	F034	K004	K018	K031	K045	K066	K094	K108	K125	K150
D005	D018	D031		F005	F035	K005	K019	K032	K046	K069	K095	K109	K126	K151
D006	D019	D032		F008	F037	K006	K020	K033	K047	K071	K096	K110	K131	K156
D007	D020	D033	001S	F007	F038	K007	K021	K034	K048	K073	K097	K111	K132	K157
D008	D021	D034	002S	F008	F039	K008	K022	K035	K049	K083	K098	K112	K136	K158
D009	D022	D035	003S	F009		K009	K023	K036	K050	K084	K100	K113	K141	K159
D010	D023	D036	004S	F010		K010	K024	K037	K051	K085	K101	K114	K142	K160
D011	D024	D037	005S	F011		K011	K025	K038	K052	K086	K102	K115	K143	K161
D012	D025	D038	006S	F012	001D	K013	K026	K039	K060	K087	K103	K116	K144	001K
D013	D026	D039	007S	F019	003D	K014	K027	K040	K061	K088	K104	K117	K145	002K

<u>Treatment Residues, Contaminated Soil, Debris or Spills</u>											P104	P114	P127	P196
P001	P009	P017	P027	P037	P045	P056	P065	P073	P084	P095	P105	P115	P128	P197
P002	P010	P018	P028	P038	P046	P057	P066	P074	P085	P096	P106	P116	P185	P198
P003	P011	P020	P029	P039	P047	P058	P067	P075	P087	P097	P108	P118	P188	P199
P004	P012	P021	P030	P040	P048	P059	P068	P076	P088	P098	P109	P119	P189	P201
P005	P013	P022	P031	P041	P049	P060	P069	P077	P089	P099	P110	P120	P190	P202
P006	P014	P023	P033	P042	P050	P062	P070	P078	P092	P101	P111	P121	P191	P203
P007	P015	P024	P034	P043	P051	P063	P071	P081	P093	P102	P112	P122	P192	P204
P008	P016	P026	P036	P044	P054	P064	P072	P082	P094	P103	P113	P123	P194	P205
U001	U021	U041	U061	U081	U101	U121	U141	U160	U180	U202	U222	U271	U381	U404
U002	U022	U042	U062	U082	U102	U122	U142	U161	U181	U203	U223	U277	U382	U407
U003	U023	U043	U063	U083	U103	U123	U143	U162	U182	U204	U225	U278	U383	U409
U004	U024	U044	U064	U084	U105	U124	U144	U163	U183	U205	U226	U279	U384	U410
U005	U025	U045	U066	U085	U106	U125	U145	U164	U184	U206	U227	U280	U385	U411
U006	U026	U046	U067	U086	U107	U126	U146	U165	U185	U207	U228	U328	U386	
U007	U027	U047	U068	U087	U108	U127	U147	U166	U186	U208	U234	U353	U387	
U008	U028	U048	U069	U088	U109	U128	U148	U167	U187	U209	U235	U359	U389	
U009	U029	U049	U070	U089	U110	U129	U149	U168	U188	U210	U236	U364	U390	
U010	U030	U050	U071	U090	U111	U130	U150	U169	U189	U211	U237	U365	U391	
U011	U031	U051	U072	U091	U112	U131	U151	U170	U190	U213	U238	U366	U392	
U012	U032	U052	U073	U092	U113	U132	U152	U171	U191	U214	U239	U367	U393	
U014	U033	U053	U074	U093	U114	U133	U153	U172	U192	U215	U240	U372	U394	
U015	U034	U055	U075	U094	U115	U134	U154	U173	U193	U216	U243	U373	U395	
U016	U035	U056	U076	U095	U116	U135	U155	U174	U194	U217	U244	U375	U396	
U017	U036	U057	U077	U096	U117	U136	U156	U176	U196	U218	U246	U376	U400	
U018	U037	U058	U078	U097	U118	U137	U157	U177	U197	U219	U247	U377	U401	
U019	U038	U059	U079	U098	U119	U138	U158	U178	U200	U220	U248	U378	U402	
U020	U039	U060	U080	U099	U120	U140	U159	U179	U201	U221	U249	U379	U403	
001U	012U	024U	036U	048U	059U	074U	088U	099U	112U	122U	137U	148U	160U	170U
002U	013U	025U	037U	049U	061U	075U	089U	100U	113U	124U	138U	150U	161U	171U
003U	014U	027U	038U	050U	063U	076U	090U	101U	114U	127U	139U	151U	162U	172U
004U	015U	028U	040U	051U	064U	077U	092U	102U	115U	128U	140U	152U	163U	173U
005U	016U	029U	041U	052U	065U	078U	093U	103U	116U	129U	141U	153U	164U	174U
006U	017U	030U	042U	054U	068U	079U	094U	104U	117U	131U	142U	154U	165U	175U
007U	020U	031U	043U	055U	070U	080U	095U	108U	118U	132U	143U	155U	166U	
008U	021U	032U	044U	056U	071U	082U	096U	108U	119U	134U	144U	157U	167U	
009U	022U	033U	046U	057U	072U	083U	097U	110U	120U	135U	146U	158U	168U	
011U	023U	034U	047U	058U	073U	086U	098U	111U	121U	136U	147U	159U	169U	

Notes: 1. Reactive wastes acceptable only after deactivation ( D003, K027, K044, K045, K047)  
 2. *Italicized* codes indicate State of Michigan waste codes.



## Resource Guide - How to Shorten Your Approval Time

### Complete the Waste Characterization Report. . . Completely.

**EQ Tracking #** Whenever possible use the EQ provided labels for the sample and WCR following the procedures provided in the EQ Resource Guide. This aids in identifying misplaced samples, WCRs etc.

#### ***Please Choose One EQ Management Facility:***

Select the facility the you anticipate shipping your waste to. A description of each of the facilities is included in the EQ-Resource Guide. This will expedite your sample and documents reaching the appropriate destination.

#### **WASTE COMMON NAME:**

Enter how the waste is commonly referred. An accurate description avoids delays in identifying waste streams and documentation in the event that a question arises.

### **Section 1-Generator & Customer Information**

**SIC#** of the facility. Several waste streams are SIC specific, having this number avoids confusion or confirms waste stream origins.

**Generator EPA ID #** -This 12 digit alpha-numeric identification number must be completed for all hazardous waste, PCB waste, and liquid industrial waste streams. If the hazardous waste/PCB waste generator is located in Michigan the ID number is obtained from Michigan Department of Environmental Quality, otherwise contact your regional EPA office.  
If the generator only generates liquid industrial waste and does not have an EPA ID number, then a Michigan Non-Hazardous ID number may be obtained by calling the MDEQ. Questions regarding obtaining an ID numbers should be directed to MDEQ at (517) 373-2730. Foreign country generators should contact their ISA.

**Generator Name, Address, City, State, Zip:** Enter the appropriate SITE information, including the name of the parent corporation.

**Generator Mailing Address**-If a separate mailing address, to send notifications, certificate of disposal, etc., is required for timely delivery, enter the mailing address (including mail codes and Attn: notations).

**Generator Contact**- Enter the name, phone and fax of the generator employee responsible for the proper management of this waste stream.

**EQ Customer Number**-Established customers are issued an EQ Customer Number. Providing the customer number reduces the possibility of delay confirming that there is a customer account established.

**Invoicing Company**-Enter the name, address, city, state, zip and country. This information is used to determined/confirm that an account is established. An approval is not issued to an unconfirmed account.

**Invoicing Contact**-Enter the name, phone and fax of the individual who should be contacted to resolve problems with the account status, if needed.

**Technical Contact**-Enter the name, phone and fax of the individual with knowledge of this waste stream.

### **Section 2 - Shipping and Packaging Information**

**2.1) Shipping Volume**-Enter the anticipated volume of waste to be shipped on an annual basis. If this is a one time event, please indicate as such to avoid being harassed about updates.

**2.2) DOT Shipping Name**-Enter the DOT Shipping Name to be used on the shipping documents. If the waste to be shipped is a hazardous material, hazardous substance or hazardous waste a proper DOT shipping name must be used. If the waste being described is not a hazardous waste, use a descriptive name without using the word "Waste".

- 2.3) **Packaging**-Provide a description of the type of packaging anticipated to be used to ship the waste. If more than one type of packaging may be used check all that apply. If the waste is received in packaging other than that described, delays at receiving should be anticipated.

### **Section 3 - Physical Characteristics**

- 3.1) **Color**-Describe the color of the waste, be as specific as possible, including any variation.  
3.2) **Odor**-Describe any odor associated with the waste.  
3.3) **Physical State**-Check all that apply, one MUST be checked.  
3.4) **Does this waste contain?**-Check all that apply, one MUST be checked.  
3.5) **Does this waste contain?**-Check all that apply, one MUST be checked.  
3.6) **Describe the composition of the waste**-Provide as much information as possible including any anticipated variation. If additional space is needed, attached additional pages.  
3.7) **Does this waste contain?**-This information is critical in determining treatment options for debris and soils. If the yes box is checked provide a complete description of the waste.

### **Section 4 - Generating Process and Regulatory Information**

- 4.1) **Detailed process description**-Provide as much information as possible describing the complete process that generates the waste. This information is used to determine if the waste is from a regulated process. Flow diagrams and pictorial representations (stick figures are OK) help eliminate concerns.  
4.2-4.8) The responses to these questions characterize the waste stream and are used to determine the appropriate treatment/handling process. All of this information must be completed so that an approval can be issued. Attach available analytical and/or Material Safety Data Sheets.

### **Section 5 - Hazardous Constituent Information**

Several sections of the WCR request constituent information, this section is where it is to be provided. Identify and quantify the Underlying Hazardous Constituents, Toxic Release Information Constituents Potentially Odorous Constituents, the Michigan Volatile Organics (MVOCs), and the Subpart CC VOCs. If needed additional pages may be attached, please indicate if additional pages are attached.

### **Section 6 - PCB & TSCA Information**

This series of questions are to provide needed information to determine the handling procedures for your waste. Provide all known or suspected information regarding PCBs.

### **Section 7 - Benzene NESHA Information**

Every profile must have the questions 7.1 and 7.2 answered, otherwise your approval will be delayed. This information is used to determine the appropriate handling methods for your waste.

### **Section 8 - Waste Constituent Information**

If the waste stream is anticipated being managed at MRSI, this section does not need to be completed. If the waste streams is anticipated being managed at WDI or MDWTP, this section must be completed.

### **Section 9 - Reclamation/Recycling/Fuel Blending**

Complete this section for waste streams to be managed at MRSI only.

### **Section 10 - Certification**

The **GENERATOR** must sign this document. IF the generator has authorized a third-party to certify this WCR, a proxy, written notice (on generator letterhead), portion of the contract, etc. must be attached at the time of submittal. The lack of signature and/or authorization will delay the approval indefinitely.

???QUESTIONS???

**Call your Inside Sales Representative, Approval Coordinator, or Account Executive before submitting your Waste Characterization Report. Doing it right the first time avoids approval delays**

## APPENDIX C

## Hg CLEANING SOLUTION-102 (HgCS-102)

Hg Cleaning Solution-102 is a product developed to assist environmental contractors and private industry to clean mercury contamination on concrete and metal, such as machinery, tubing and piping. The remediation of mercury contamination has been an expensive process before and required the use of hazardous solvents. HgCS-102 is a fast-acting solution with a high removal rate of contamination with each application. It is effective on solid and porous surfaces.

HgCS-102 is non-corrosive, non toxic, non-flammable, water-soluble and biodegradable in its pure state. It was developed with personnel safety and public concern regarding hazardous solvents in mind. It will satisfy the most prudent environmental and safety managers.



## Hg CLEANING SOLUTION-102 (HgCS-102)

- I. HgCS-102 is specifically formulated to clean mercury from concrete, metal and plastic surfaces. Before using the product, all debris should be removed from the surface to be cleaned. Once this is accomplished, the following steps should be taken.
- II. Application Instructions are as follows:
  - A. Apply HgCS-102 by spraying, painting, etc., so that the chemical comes in contact with all surfaces to be cleaned. To clean pipe and tubing, spray product on all surfaces to be cleaned.
  - B. If possible, the surface should then be brushed to agitate the product to enhance cleaning. This may not be possible with pipe and tubing. Using high pressure when applying product will be helpful.
  - C. Allow the material to be in contact with the surface to be cleaned for approximately 15 minutes. For highly contaminated surfaces or where there is heavy sludge in pipe or tubing, allow a set time of 20 to 25 minutes. For subsurface cleaning allow one (1) hour set time.
  - D. HgCS-102 can be removed with high pressure water or steam. If in an area where this is not possible, simply clean by applying water and wiping with absorbent cloths.
  - E. Effluent should be collected and disposed of in accordance with applicable State or Federal Regulations.
  - F. If more than one application is needed, repeat steps A. through E.

Note: When cleaning pipe or tubing, the solution may be used more than once if the contamination level of the solution is low.





I. All surfaces should be cleaned of any loose debris on the surface to be cleaned. Then apply HgCS-102 by spraying insuring that the product comes in contact with all surfaces to be cleaned. The surface should then be brushed to enhance the cleaning process. Allow HgCS-102 to be in contact with the surface for at least 15 minutes. HgCS-102 should be vacuumed from the floor after fifteen minutes. The floor should then be thoroughly rinsed with water and vacuumed dry. If the mercury vapor levels remain above regulated levels, the cleaning process should be repeated.